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DISEASES CAUSED BY BACTERIA AND FUNGI

OEDING, P. (1953). **A simple serological procedure for the differentiation between pyogenic and saprophytic staphylococci.**—*Acta path. microbiol. scand.* **32,** 187-192. [In English.] **1345**

Of 510 strains of staphylococci including both saprophytic and atypical strains, tested with absorbed serum prepared against the widely distributed *Staph. pyogenes* antigens *a* and *c*, only 8 biochemically determined saprophytic strains gave positive reactions. The author suggested that the serological method of differentiation is more reliable than the biochemical method.—A. H. LINTON.

BERENGO, A. & SALVI, A. (1953). Tireopatie sperimentali da inoculazioni intratiroidea ed endovenosa di stafilococco albo tireotropizzato nel ratto normale. **[Action of a thyrotropic strain of *Staph. albus* on the thyroid gland of normal rats when inoculated into the thyroid gland or intravenously.]**—*Boll. Ist. sieroter., Milano.* **32,** 419-422. [Abst. from English summary.] **1346**

A strain of *Staph. albus*, after repeated passage in the thyroid gland of live rats, showed increased pathogenicity for the gland. When the organism was inoculated directly into the thyroid, it developed more rapidly and produced severe lesions in it; when inoculated i/v it showed a remarkable thyrotropism.

ROUNTREE, P. M. (1953). **Bacteriophage typing of strains of staphylococci isolated in Australia.**—*Lancet.* **264,** 514-516. [Author's summary modified.] **1347**

R. described the results of bacteriophage typing of 3,150 strains of *Staph. pyogenes*, penicillin-sensitive and penicillin-resistant strains being considered separately.

The general pattern of frequency distribution of the various phage groups was similar to that found in England. However, among normal nasal carriers of penicillin-sensitive strains there was a slightly higher incidence of group-III strains in Australia; and in skin lesions such as abscesses and in deep infections caused by penicillin-sensitive strains there was a predominance of group-III strains. Group-III strains comprised 66–80% of the penicillin-resistant strains.

HOTCHIN, J. E. (1951). **The influence of acridines on the interaction of *Staphylococcus aureus* and staphylococcus *K* phage.**—*J. gen. Microbiol.* **5,** 609-618. **1348**

Inhibition of *K* bacteriophage action by the compounds tested varied, ranging from less than 5% to 100%. One-step growth curves confirmed the effectiveness of 5-aminoacridine at 50 micromolar concentration.—K. J. SINCLAIR.

HOBSON, D. (1954). **Activity of erythromycin against *Staphylococcus aureus*.**—*Brit. med. J.* Jan. 30th. 236-239. [Author's summary modified.] **1349**

The sensitivity to erythromycin of a large series of strains of *Staph. aureus* was of the order of 0·5 mg./ml. and was independent of their phage type or their behaviour to four other antibiotics. The effect of erythromycin on the growth rate of staphylococci has been shown to vary according to the concentrations of antibiotic. Concentrations above the minimum inhibitory conc. produce a fall in the number of viable organisms. The development in staphylococci of resistance to erythromycin appears to follow a stepwise pattern resembling that seen with penicillin. Resistant staphylococci were found to differ from the erythromycin-sensitive parent organism only by slight differences in growth rate and by the acquisition of cross resistance to carbomycin.

BELJANSKI, M. (1953). Comparaison de souches bactériennes résistantes à des antibiotiques avec des souches sensibles de même espèce. II. Cas de la pénicilline. [**Comparison of bacterial strains resistant to antibiotics and strains of the same species sensitive to antibiotics. II. Penicillin.**]—*Ann. Inst. Pasteur.* **84,** 402-409. 1350

In contrast to what occurs in the case of streptomycin, penicillin - resistant strains of *Staph. aureus* show no inhibition of ribonucleic acid depolymerization nor of protein synthesis.
—G. P. MARSHALL.

OLSEN, S. J. (1949). Problemer vedrørende mastitisbekaempelsen. [**Problems of mastitis control.**] — *Nord. Vet.-Med.* **1,** 277-311. [Abst. from English summary.] 1351

An account of control work on mastitis in dairy herds on 36 Danish farms; 4,183 samples, derived from quarters of 1,058 cows were examined culturally. Examination of fore-milk from 237 quarters revealed infection in 137 cows. Details are given of the results of examining the first and the fourth and fifth jets of milk.

A proportion of 6,107 samples from 1,569 cows was examined culturally. The contaminating flora in the cultures where crystal violet had been used was very slight compared with cultures without crystal violet. Infection was present in 315 infected quarters of 186 cows.

In tests with aesculin—crystal violet—blood agar on 8,664 samples from 2,202 cows, infection was demonstrable in 349 quarters of 218 cows; whereas parallel tests in which the milk samples were incubated in sodium azide soln. (38°C. for 18 hours) before surface culture on Edwards' medium, revealed infection in 873 quarters of 464 cows.

By examining the histories of 246 cases which the agar slope method had failed to detect, it was estimated that at least 150 of them were infected, whereas in the remainder it was doubtful whether the streptococci present would have caused mastitis.

The author suggested that the sodium azide method should be used as a routine supplement to the agar slope method, particularly in herds producing milk certified free from β-haemolytic streptococci.—E.G.

I. HAUGE, S. & ELLINGSEN, J. K. (1953). Et selektivt agar - medium (T.K.T. - mediet) beregnet til påvisning av gruppe B-streptokokker i samlemelk (leverandør - melkeprøver). [**A selective medium for isolation of Group B streptococci from milk.**]—[T.K.T. denotes thallium sulphate-crystal violet-toxin blood agar.]—*Nord VetMed.* **5,** 539-547. [In Norwegian. English and German summaries.] 1352

II. HANSEN, A. & WINTHER, O. (1953). Om anvendelsen af stafylokoktoksin ved undersøgelsen af blandingsmaelk for mastitisstreptokoker. Foreløbig meddelelse. [**Use of staphylococcal toxin in the examination of bulk milk for mastitis streptococci. Preliminary report.**]—*Ibid.* 349-358. [In Danish. English and German summaries.] 1353

I. The authors described a modified Edwards' medium to which was added 4–6% β toxin prepared from heat-treated culture of a strain of staphylococcus (S. 32a), for the routine culture of bulk milk samples for Group B streptococci. The mik sample is inoculated into the liquid medium and incubated for 20 hours at 37°C. Group B streptococci give a broad zone of haemolysis in the medium. Certain strains of *Str. uberis* give a zone of similar haemolysis, but they can be differentiated from those of Group B by their action on aesculin.

II. An account of preliminary tests on the routine use of a modified selective medium for the detection of mastitis streptococci in bulk milk samples. The medium differed from that described by Hauge & Ellingsen [see I *supra*] in the substitution of fresh meat broth for meat extract and the addition of a lower concentration of heat-treated staphylococcus culture (1–2%). Of 381 bulk herd samples tested, 88 gave cultures of Group B streptococci, 12 gave cultures of Group L or C and 24 of *Str. uberis*, as compared with 39 cultures of Group B and 10 of Group L or C on ordinary blood agar. The authors recommended the use of this method in conjunction with the catalase test.
—F.E.W.

KRÜGER, W. (1953). Lebt der Streptococcus agalactiae in den Schweissdrüsen der Hand? [**Survival of *Str. agalactiae* in the sweat glands of the milker's hand.**]—*Dtsch. tierärztl. Wschr.* **60,** 193-196. 1354

K. attempted to grow *Str. agalactiae* from the skin of the hands of 27 milkers, having taken elaborate precautions to eliminate casual skin organisms, in all cases with negative results. He described briefly a streptococcus that was grown in such cultures.—H. BEHRENS.

JEPSEN, A. & SZABO, L. (1951). Om en dysgonisk type af *Streptococcus agalactiae*, som kun kan påvises under saerlige dyrkningsbetingelser. [**A dysgonic type of *Str. agalactiae*.**] — *VI. Nord. Veterinärmötet.*

[Proceedings of the sixth Scandinavian and Finnish Veterinary Conference, Stockholm, August 10th-11th 1951.] pp. 267-271. [In Danish. English summary.] 1355

Microscopic examination of samples of abnormal milk, from cows on a farm where an acute type of mastitis occurred, revealed the presence of large numbers of streptococci, but cultures did not grow from 70–90% of the samples. The infection was found to be due to a dysgonic type of *Str. agalactiae* (Group B) requiring CO_2.—H. Boyd.

Sherry, S. (1952). **The action of streptococcal desoxyribonuclease (streptodornase) on purulent exudates.**—*Trans. N.Y. Acad. Sci.* **14,** 138-140. 1356

Deoxyribonucleoprotein (DNP) is present in quantity in thick purulent exudates and is the cause of their high viscosity.

Streptodornase acts dramatically upon DNP and denatures it so that the thick pus rapidly becomes thinner. S. described biochemical functions of this effect.

Streptodornase is a valuable therapeutic agent in diseases associated with the formation of thick pus, which can be mobilized and then evacuated by physical means.—J. Edwards.

Roberts, S. J., Gilman, H. L. & Larsen, P. H. (1950). *Vibrio fetus* **infection in cattle.**—*Cornell Vet.* **40,** 111-124. 1357

The authors gave brief details of observations made on seven infected herds. Abortion tended to occur earlier in pregnancy than in *Br. abortus* infection. The agglutination test was not very reliable. They discussed means of control.

—M. B. Cooper.

Harms, F. & Hörter, R. (1953). Die Züchtung von *Vibrio foetus* und *Vibrio suis*. [**The cultivation of** *V. fetus* **and** *V. suis*.]—*Dtsch. tierärztl. Wschr.* **60,** 320-322. 1358

The authors found that *V. fetus* was viable for 10 months in liver broth and *V. suis* for 12 months in skim milk, at 37°C.

—G. P. Marshall.

Biswal, G., Rhoades, H. E., Barto, P. B. & Morrill, C. C. (1953). **Observations of an outbreak of vibriosis in sheep.**—*J. Amer. vet. med. Ass.* **123,** 410-414. [Abst. from authors' summary.] 1359

In an epidemic of ovine vibriosis, abortions reached an incidence of 28% and occurred in late pregnancy; retention of the placenta did not occur. The organism was isolated from the contents of the foetal stomach, small intestine, caecum, colon, kidneys, lungs, heart blood, brain stem, amniotic fluid, allantoic fluid, foetal membranes, and umbilical cord; also from the intracaruncular area of the uterus and from the local inflammatory lesions in the uterus of the dam. [The authors speak of these lesions as placentomes: the use of this term here seems to be unnecessary.] The lesions observed in naturally infected pregnant ewes and experimentally infected pregnant g. pigs were mainly confined to the uterus and placenta. The agglutination titres remained relatively constant for 10 months after the outbreak. The highest titre recorded for a known *V. fetus*-infected ewe was 1:400. There were no abortions during the year following the outbreak.

Jensen, J. & Kleemeyer, H. (1953). Die bakterielle Differentialdiagnose des Anthrax mittels eines neuen spezifischen Testes (" Perlschnurtest "). [**Bacteriological diagnosis of anthrax by means of the growth characteristics of** *B. anthracis* **in the presence of penicillin.**]—*Zbl. Bakt. I. (Orig).* **159,** 494-500. [English, French and Russian summaries.] 1360

Under standardized cultural conditions anthrax bacilli assume the appearance of a " string of pearls " when the medium contains from 0·05–0·5 units/ml. of penicillin. As far as the authors have investigated, none but *B. anthracis* develop this appearance, nor do any other antibacterial agents have this effect. They state that the method can help to identify *B. anthracis* relatively rapidly.—J. Edwards.

Balansard, J. & Grebus, C. (1952). Action *in vivo* du marrubylmarrubinate de magnésie sur le charbon expérimental de la poule et *in vitro* sur *B. anthracis*. [**Action of magnesium marrubylmarrubinate on experimental anthrax in the fowl.**]—*C. R. Soc. biol. Paris.* **146,** 1346-1348. 1361

Both *in vivo* and *in vitro* this preparation appeared to have some protective action in experimentally induced anthrax in poultry.

—D. Luke.

Nordberg, B. K. (1953). **Continued investigations of some important characteristics in anthrax-like microorganisms as viewed from a point of view of differential diagnosis.**—*Nord. VetMed.* **5,** 915-924. [In English. German and Swedish summaries.] 1362

N. carried out extensive work comparing *B. mycoides* (42 strains) and *B. cereus* (54 strains) with *B. anthracis*, employing strains from many countries. He found that a reliable diagnosis could be made if, in addition to the

usual bacteriological examinations, suspect cultures were cultivated in a transmigration medium with inactivated horse blood serum. Pathogenicity tests in g. pigs and rabbits, however, gave variable results.—F.E.W.

SOLOTOROVSKY, M., ROBINSON, H. J. & KNIAZUK, M. (1953). **Design and operation of a laboratory for experimental tuberculosis.** —*Amer. Rev. Tuberc.* **68,** 212-219. [French and Spanish summaries.] **1363**

The authors described the design and operation of a TB. laboratory planned to minimize the danger of laboratory infection. Attention was given to the animal room, air supply, housing of infected animals, cubicles and hoods to accommodate animals under treatment, clothing worn by laboratory workers, cleansing procedures, *in vitro* and *post mortem* procedures and the testing of air for contamination.—G. V. LAUGIER.

MESSIERI, A. (1950). Sulla tubercolosi del cavallo. **[TB. in a horse.]**—*Arch. Vet. Ital.* **1,** 49-62. [English, French, German and Spanish summaries. Abst. from English summary.] **1364**

A clinical account of TB. in a horse, caused by bovine type tubercle bacilli.

—G. V. LAUGIER.

SMITH, H. W. (1953). **The demonstration of tubercle bacilli in milk.**—*J. Path. Bact.* **65,** 67-77. [Author's summary modified.] **1365**

S. studied the use of g. pigs, Dubos' liquid and solid media, and other media for the isolation of tubercle bacilli from milk. The main problem was the control of contaminants in bulk milk. Trisodium phosphate (10%) was the most satisfactory chemical for this purpose, but it and also 4% sodium hydroxide had a significantly lethal effect on bovine type tubercle bacilli. These two chemicals were suitable only when, after treatment, specimens were cultured on Dubos' solid medium containing 100 units of penicillin per ml. Oxalic acid (5%) was of little value since it did not control the moulds in the milk samples.

Direct microscopy and cultural examination on Dubos' penicillin agar were carried out on 312 samples of bulk milk from groups of cows. Thirty had been shown by g. pig inoculation to contain tubercle bacilli. Of these, 16 (55·3%) were positive on culture and 10 (33·3%) on direct microscopic examination. Other acid-fast bacilli were observed during the direct microscopic examination of 26 (8·3%) milk samples negative by g. pig inoculation and culture. S. discussed the significance of this finding.

HAUDUROY, P. & CEVEY, M. (1953). Importance des réactions cyto-chimiques pour la détermination de la virulence des mycobactéries et intérêt pour la classification. **[Cytochemical reactions in estimation of virulence of mycobacteria.]**—*Ann. Inst. Pasteur.* **84,** 1034-1035. **1366**

Highly and slightly virulent mycobacteria gave positive results with Dubos', Desbordes', or Wilson's tests; a mixture of virulent and saprophytic mycobacteria gave negative results with all three tests. The organisms used were a virulent human type of *M. tuberculosis,* a B.C.G. strain and known saprophytic strains.

—E. MARSH JONES.

REED, R. W. (1953). **Slide culture of tubercle bacilli. I. Media and methods.**—*Canad. J. med. Sci.* **31,** 367-376. **1367**

R. described a simple method of culturing *M. tuberculosis* from sputum. Growth is obtained in 6 to 14 days on slides incubated in a serum-synthetic medium and is detected microscopically. The method appears more sensitive than the conventional procedure and saves up to 3 weeks in the reporting of positive cultures.

—R. GWATKIN.

BRIEGER, E. M. & GLAUERT, A. M. (1953). **A study of the reproduction of the tubercle bacillus.**—*Tubercle, Lond.* **34,** 128-138. **1368**

The study of living cultures with the phase contrast microscope and confirmation of the observations with the electron microscope have helped to elucidate certain stages in the ' life-cycle ' of the avian type tubercle bacillus. The paper is illustrated with 23 photomicrographs.

—W. R. BETT.

BLOCH, H., SORKIN, E. & ERLENMEYER, H. (1953). **A toxic lipid component of the tubercle bacillus (" cord factor "). I. Isolation from petroleum ether extracts of young bacterial cultures.**—*Amer. Rev. Tuberc.* **67,** 629-643. [French and Spanish summaries.] **1369**

NOLL, H. & BLOCH, H. (1953). **A toxic lipid component of the tubercle bacillus (" cord factor "). II. Occurrence in chloroform extracts of young and older bacterial cultures.** —*Ibid.* 828-852. [French and Spanish summaries.] **1370**

ASSELINEAU, J., BLOCH, H. & LEDERER, E. (1953). **A toxic lipid component of the tubercle bacillus (" cord factor "). III. Occurrence and distribution in various bacterial extracts.**—*Ibid.* 853-858. [French and Spanish summaries.] **1371**

I. The crude material referred to as " cord factor " [*V.B.* 22, 2362] obtained from cultures

of tubercle bacilli by extraction with petroleum ether, is concentrated by chromatography on activated magnesium silicate. The most toxic fraction is lethal for mice on five repeated injections of 0·005 mg. each.

II. A toxic material, obtained from chloroform extracts of live and heat-killed cultures of virulent tubercle bacilli and found in the acetone-soluble part of the ' purified wax ', is closely associated with an acidic component, probably identical with mycolic acid.

III. The characteristic toxicity of " cord factor " was found in two of the wax fractions from chloroform extracts of different strains of virulent tubercle bacilli and of B.C.G. Toxic fractions were obtained from young cultures as well as from cultures 4 and 6 weeks old. Synthetic branched chain α-alkyl, β-hydroxy acids, and bacterial mycolic acids were found to be inactive.—W. R. Bett.

Luzzati, D. (1953). Action des agents tensioactifs sur le bacille de Koch; le Tween 80. [**Action of surface-active agents on** *Mycobacterium tuberculosis*.]—*Ann. Inst. Pasteur.* **85**, 277-281. 1372

Increased growth rate of an avian type strain of *M. tuberculosis* in the presence of " tween 80 " was shown to be due primarily to the utilization of this substance as a source of carbon.—G. V. Laugier.

Rees, R. J. W. & Hart, P. D'A. (1952). **The inhibition of growth of avirulent strains of** *Mycobacterium tuberculosis* **by a surface-active polyoxyethylene ether.**—*J. gen. Microbiol.* **7**, 372-381. [Authors' summary modified.] 1373

Examination of the action of a series of surface-active polyoxyethylene ethers on the growth of the avirulent strain of *M. tuberculosis* (H37Ra) showed that the ether of 2,2′-dihydroxy-5, 5′-di-tert-octyldiphenylmethane (D4), inhibited this strain but not the virulent variant (H37Rv). This type of differential inhibition was observed with a commercial surface-active mixture, ' Triton A20 '. Lengthening of the polyoxyethylene chains of D4 led to loss of its inhibitory property. Both D4 and ' Triton A20 ' could induce resistance in the avirulent strain (H37Ra), and cross-resistance to D4 of a strain resistant to ' Triton A20 ' was observed; this cross-resistance suggested that a compound closely related to D4 was the active constituent of ' Triton A20 '. The growth of four other avirulent strains of tubercle bacilli was inhibited, like that of H37Ra, by D4 while two slightly virulent strains grew freely in this detergent, like H37Rv.

Luke, D. (1953). **The intradermal tuberculin test in the pig.**—*Vet. Rec.* **65**, 533-535. [Abst. from author's summary.] 1374

L. discussed the susceptibility of the pig to the different types of tubercle bacilli. In recent infections there is a high degree of skin sensitivity. The i/d reaction to tuberculin is at its max. in 24 to 48 hours. The pig has a marked ability to overcome experimentally-induced TB. L. drew attention to the difficulty of correlating P.M. findings and skin reactions in long-standing infections. A typical response to " the Stormont test " was not regularly produced. No evidence was found that tuberculo-protein could act as a sensitizing agent. L. suggested the use of a mixed avian and mammalian type tuberculin for tests where information as to the type of infection present is not required. He discussed the specificity of avian and mammalian types of tuberculin in the pig.

Gastinel, P., Galland, R. & Maillet, J. (1953). Du comportement des cobayes tuberculeux traités par l'isoniazide à l'égard de la sensibilisation tuberculinique et des phénomènes de surinfection. [**Effect of treatment with isoniazid on the tuberculin test.**]—*Ann. Inst. Pasteur.* **85**, 287-294. 1375

Iso-nicotinic acid hydrazide, 15 mg./kg. body wt., injected s/c daily for 47 days, did not prevent allergic manifestations in g. pigs after i/d injection of virulent living or dead tubercle bacilli, which after bacteriostasis acquired a high resistance to the drug. Differences from results obtained by other workers probably resulted from their use of the i/d method of injection.—F. R. Harris.

Iland, C. N. (1953). **Immunising properties of a urea-killed tubercle vaccine.**—*Lancet.* **265**, 277-279. 1376

The author killed a virulent strain of human type tubercle bacillus by exposure to a concentrated solution of urea. A vaccine prepared from the killed organisms proved equal to a standard B.C.G. vaccine in its power to protect g. pigs against virulent infection.—A.S.

Collard, P., Anderson, K., King, M. B., Chalmers, D. G. & Knox, R. (1953). **Bacteriological control of therapeutic trials in pulmonary tuberculosis.**—*Lancet.* **265**, 155-158. 1377

The results obtained in a small-scale clinical trial of chemotherapeutic agents in pulmonary TB. indicated that direct microscopic examination of the bacteria of the sputum gave perhaps

the most useful laboratory guide to response to chemotherapy, provided that the method of counting was rigidly standardized.

The culture of *Mycobacterium tuberculosis* from patients receiving chemotherapy, and particularly from patients taking isoniazid (*iso*-nicotinic acid hydrazide) presented a number of difficulties. The methods at present used for determining sensitivity to isoniazid are unsatisfactory because they are sometimes inaccurate and are too slow to be suitable for routine use.
—A.S.

BRYGOO, R. (1953). Effet de la cortisone sur l'infection expérimentale du cobaye vacciné au BCG. [**Effect of cortisone on the subsequent reaction of g. pigs vaccinated with B.C.G. to inoculation with virulent tubercle bacilli.**] — *Ann. Inst. Pasteur.* **84,** 924-936. **1378**

Cortisone, given i/m at a dosage of 5 mg./kg. to B.C.G.-vaccinated g. pigs for 15 days before the inoculation of virulent human type bacilli did not fundamentally affect the results of skin tests, except by reducing the area and the severity of the inflammatory reaction.
—G. P. MARSHALL.

PYKE, D. A. & SCADDING, J. G. (1952). **Effect of cortisone upon skin sensitivity to tuberculin in sarcoidosis.**—*Brit. med. J.* Nov. 22nd, 1126 - 1128. [Abst. from authors' summary.] **1379**

In 8 of 10 human patients with sarcoidosis who normally failed to react to 100 T.U. (tuberculin units) of tuberculin i/d and who were injected with 100 mg. of cortisone daily, skin sensitivity to tuberculin was detected 6–17 days after the first inj. of cortisone; it was transient, fading after 48 hours even though cortisone treatment continued. Seven of 9 patients who had failed to react to a similar i/d inj. of tuberculin had a transitory reaction after an inj. of 1·25 mg. cortisone with the dose of tuberculin. In 3 patients normally sensitive to 100 T.U. or less, similar local inj. of cortisone with tuberculin inhibited the reaction to the latter.

DE LAJUDIE, P., FOURNIER, J. & CHAMBON, L. (1953). L'appareil flagellaire du bacille de Whitmore. [**The flagella of *Pfeifferella whitmori*.**]—*Ann. Inst. Pasteur.* **85,** 112-116. **1380**

The authors confirmed that *Pf. whitmori* is mono- or lophotrichate, with polar flagellar implantation; they subscribe to the view that it is related to *Pf. mallei*.—R. B. HOLCOMBE.

SHUMAN, R. D. & SCHOENING, H. W. (1953). **Experimental evaluation of culture and serum vaccination for the control of swine erysipelas. I. Recapitulation of the swine erysipelas problem.**—*J. Amer. vet. med. Ass.* **123,** 301-304. **1381**

SHUMAN, R. D. (1953). **Experimental evaluation of culture and serum vaccination for the control of swine erysipelas. II. Baby pig vaccination. III. Weanling age vaccination.** —*Ibid.* 304-307 & 307-310. **1382**

I. The authors discussed the difficulties encountered in the experimental reproduction of *E. rhusiopathiae* infection and in evaluating methods of biological control. The skin scarification method for the experimental reproduction of the disease has now rendered possible a more precise evaluation of methods of vaccination. [Doyle (*V.B.* **18,** 1409) reported that pigs immunized with crystal violet vaccine against swine fever were highly susceptible to *E. rhusiopathiae* infection.]

II. When pigs were vaccinated 2–5 days after birth and subsequently exposed to virulent culture by the skin scarification method, 37·5% showed a measure of protection at 8–10 weeks and only 13·3% showed any degree of protection at 11–12 weeks.

III. In pigs vaccinated at weaning by the culture-serum method and subsequently tested for immunity at intervals by the skin scarification method, a worth-while level of immunity was demonstrable up to market age at 5–7 months.—D. LUKE.

MESSMORE, H. L. (1952). **Erysipelas in swine.** —*N. Amer. Vet.* **33,** 385-396. **1383**

A clinical article. M. discussed the relationship of bad hygiene to the disease. He stated that *E. rhusiopathiae* can pass through the placenta to the foetus. Pre-natal infection may be followed by a chronic rhinitis and facial deformity may develop before weaning.
—K. G. TOWERS.

GALLI, G. (1953). Il mal rossino negli uccelli: osservazioni su un'enzoozia da bacillo del mal rossino in un allevamento di anitre. [***Erysipelothrix rhusiopathiae* infection in birds: an enzootic in ducklings.**]—*Clin. Vet., Milano.* **76,** 17-21. **1384**

An account of an outbreak of *E. rhusiopathiae* infection in a flock of ducks in the neighbourhood of an abattoir, ducklings 20 days old being mainly affected.—I. MARTINI.

VAN DORSSEN, C. A. & DONKER-VOET, J. (1953). Spontane Erysipelothrix rhusio-

pathiae-infectie bij duiven. [*Erysipelothrix rhusiopathiae* **infection in pigeons.**]—*Tijdschr. Diergeneesk.* **78,** 501-513. [English, French and German summaries.] **1385**

This is a detailed report of an investigation into the cause of death of a pigeon. *E. rhusiopathiae* was isolated; cultures from the pigeon were used to infect pigs which developed typical swine erysipelas with " diamond skin " lesions. —J. EDWARDS.

RUBARTH, S. & WOLLARZ, E. (1951). Bidrag till de s. k. celliga levernekrosernas morfologi och etiologi. [**Liver necrosis in calves associated with** *Erysipelothrix* (*Listeria*) *monocytogenes.*]—*VI. Nord. Veterinärmötet.* [Proceedings of the VIth Scandinavian and Finnish Veterinary Conference, Stockholm, August 10th-11th 1951.] pp. 30-34. [In Swedish. Abst. from English summary.] Discussion pp. 34-35. **1386**

In the course of meat inspection the livers from 250 unweaned calves were found to be studded with grey nodules. Histologically these lesions consisted of necrosis with infiltration by leucocytes and lymphocytes, and endophlebitis. The authors noted the similarity of the condition to salmonella infection in calves. Organisms closely resembling *E. monocytogenes* were isolated from the lesions.—R.M.

SKHILADZE, M. V. (1953). [*Erysipelothrix* (*Listeria*) *monocytogenes* **infection in horses and pigs.**]—*Veterinariya, Moscow.* **30,** No. 9. pp. 23-24. **1387**

An account of illness, considered to have been *E. monocytogenes* infection, in horses and pigs.—F. A. ABBEY.

JONES, T. E. (1953). *Listeria monocytogenes* **infection in a fowl.**—*Aust. vet. J.* **29,** 41-42. **1388**

J. reported the isolation of *Erysipelothrix* (*Listeria*) *monocytogenes* from a sick fowl of an inbred line with a known susceptibility to such diseases as coryza, leucosis and enterohepatitis. *E. monocytogenes* had not previously been isolated from fowls in Australia. Cultures obtained from the heart blood and liver were pathogenic for mice, but not for healthy fowls.—K. JOHNSTON.

WOXHOLTT, C., NAERLAND, G. & HOFF, H. (1952). Pasteurella hemolytica infeksjon hos sau. [*Past. haemolytica* **infection in sheep.**] —*Nord. VetMed.* **4,** 433-450. [In Norwegian. English and German summaries.] **1389**

A review of the literature on *Past. haemolytica* infection causing septicaemic pneumonia in sheep, with an account of the lesions. The infection appears to be common in Norway. Altogether 25 strains of this organism were isolated over the whole country, and of these 15 were examined serologically and appeared to be closely related. No free haemolysin was demonstrable on culture. An effective vaccine was produced.—R. B. HOLCOMBE.

VAN DORSSEN, C. A. (1951). Pseudotuberculosis bij duiven; een practische les in bacteriologie. [*Pasteurella pseudotuberculosis* **infection in pigeons.**]—*Tijdschr. Diergeneesk.* **76,** 249-254. **1390**

Cultures of *Past. pseudotuberculosis* were isolated from two diseased pigeons. Close relationship is suggested between this organism and *Shigella pfaffii;* they may even be identical. —A. J. ULTÉE.

TARLATZIS, K. (1952). [**Bovine mastitis caused by** *Pseudomonas pyocyanea* **in Greece.**]—*Delt. Hellen. kten. Hetair.* **2,** No. 5. pp. 41-44. [French summary.] **1391**

An account of mastitis in cows, due to *Ps. pyocyanea.* Three out of 5 cases treated with streptomycin were cured.—J. M. TAIT.

PULVERTAFT, R. J. V. (1952). **The effect of antibiotics on growing cultures of** *Bacterium coli.*—*J. Path. Bact.* **64,** 75-89. **1392**

Tests were made with penicillin, streptomycin, aureomycin, chloramphenicol and terramycin. With penicillin, enlargement of the organisms occurred at all concentrations followed by lysis. With the other four antibiotics, changes indicating death (all cinematographically recorded in slide cultures by phase-contrast microscopy) occurred at high concentrations and, at low concentrations, enlargement of the organisms and monster formation without division occurred. Seventeen photomicrographs were reproduced and 31 references were given. —MALCOLM WOODBINE.

RASCH, K. (1953). Über Salmonella-dublin-Funde im Uterus des Rindes. [**Occurrence of** *Salmonella dublin* **in the uterus of cattle.**] —*Dtsch. tierärztl. Wschr.* **60,** 394-397. **1393**

S. dublin was cultivated from the uterus or vagina of 22 out of 32 cows which were permanent excretors of the organism and harboured it in the gall bladder. In 15 out of the 22 cows the genital tract was normal; in 7 there was a purulent discharge.—A. MAYR-HARTING.

VAN OYE, E. (1953). Répertoire et distribution géographique des salmonellae du Congo Belge. [**Species and geographical distribution of**

Salmonella **in the Belgian Congo.**]—*Bull. Soc. Path. exot.* **46,** 340-347. **1394**

During 1946-51, fourteen species of Salmonella were isolated from horses, ruminants, pigs, fowls, laboratory rodents and snakes in the Belgian Congo. Cattle yielded *S. typhimurium, S. enteritidis,* and *S. bovis-morbificans,* but not *S. dublin. S. typhi-murium, S. enteritidis* and *S. dublin* together accounted for 40% of the cases of human infection, *S. dublin* cases predominating in certain cattle-raising areas. *S. uganda,* (an indigenous African species), and 4 new species occurring only in the Congo caused human disease, but were rare in animals.—J. E. SMITH.

MICHALKA, J. (1951). Experimentelle Untersuchungen über die Zuverlässigkeit der serologischen Untersuchungsmethoden bei der weissen Ruhr der Kücken. [**The reliability of serological diagnosis in pullorum disease.**] —*Wien. tierärztl. Mschr.* **38,** 710-716. [English, French and Italian summaries.] **1395**

M. found much variation between the results of the rapid plate and the tube agglutination tests for *S. pullorum* infection carried out systematically on a group of 40 fowls over a period of a year.—I. W. JENNINGS.

DE MOULIN, F. (1951). Over een instrument te gebruiken bij het pullorumbloedonderzoek in de praktijk. [**An instrument for the collection of blood for testing for** *S. pullorum* **infection.**]—*Tijdschr. Diergeneesk.* **76,** 254-258. **1396**

The author described an instrument—illustrated in a diagram—consisting of a lancet and a wire loop fitted on the same end of a holder, the loop being bent at a convenient angle.

—C. A. VAN DORSSEN.

HITCHNER, E. R. (1952). **Coproantibodies against** *Salmonella pullorum* **in chickens.**—*Proc. 24th Ann. Meet. N.E. Conf. lab. Wkrs Pullorum Dis. Contr.* June 19 and 20, (1952). p. 1. (No pagination.) [Mimeographed.] **1397**

H. described an attempt to demonstrate faecal antibodies in chicks of various ages following oral inoculation of living cultures of *S. pullorum.* Although antibodies were present in high titre in the blood serum even after a single dose of culture, faecal antibodies were not regularly found in any appreciable titre even in chicks that were repeatedly dosed at 2-day intervals.—F. T. W. JORDAN.

LANCASTER, J. E., GORDON, R. F. & TUCKER, J. (1952). **The disinfection, prior to incubation of hen eggs contaminated with** *Salmonella pullorum.*—*Brit. vet. J.* **108,** 418-431. [Authors' summary modified.] **1398**

The following disinfectant solutions used at 25°C. with an immersion of 15 min. effectively removed *S. pullorum* from artificially infected clean and dirty eggs: 0·2% sodium salt of para-toluesulphonochloramide, 1·8% of 10% sodium hypochlorite, 0·5% cetyltrimethyl ammonium bromide and 1·5% chlorometa xylenol. The effectiveness of the first two was increased when they were used with detergents (unnamed).

The hatchability of eggs immersed in at least double the effective strength of these disinfectants was unaffected.

The stability of the solutions following the immersion of successive groups of eggs was examined. A 0·4% solution of para-toluesulphonochloramide with detergent retained its ability to kill *S. pullorum* to a maximum of 46 successive immersions. *S. thompson* and *S. typhi-murium* were more resistant to the action of the disinfectants tested.

These disinfectants were found to be of no value in the control of egg rot in stored market eggs.

HINSHAW, W. R. (1953). **High incidence of** *Salmonella gallinarum* **infection in eggs.**—*Vet. Med.* **48,** 427. **1399**

S. gallinarum was isolated from 17 out of 23 eggs, laid by a hen which had survived a field outbreak of fowl typhoid and was a reactor to the rapid plate agglutination test.

—E. A. GIBSON.

FAIN, A., KAUFFMANN, F. & SCHOETTER, M. (1952). **A new Salmonella type (***S. zega***) from the Belgian Congo.**—*Acta path. microbiol. scand.* **31,** 325. [In English.] [Authors' summary modified.] **1400**

An account of a new *Salmonella* type (*S. zega*=IX, XII:d:z_6), isolated from sick ducklings in the Belgian Congo.

SØRUM, L. (1953). Infeksjon med *Salmonella typhimurium* var. Copenhagen på duer i Norge. [**Infection of pigeons in Norway with** *S. typhi-murium* **var.** *copenhagen.*]—*Nord. VetMed.* **5,** 385-400. [In Norwegian. English and German summaries.] **1401**

An account of P.M. examination, serological and pathogenicity tests in connexion with an outbreak of *S. typhi-murium* var. *copenhagen* infection in pigeons. The author states that the diagnosis of this condition during life is unsatisfactory. Infection in man has occurred in Norway.—H. BOYD.

GILMAN, H. L. (1951). **Bovine brucellosis.**—*Exi. Bull. Cornell.* No. 818. pp. 29. **1402**

A general account of brucellosis in cattle, written largely in non-technical language. Important aspects of the questions involved are dealt with in detail.—C. C. BANNATYNE.

BENEDICT, A. A. & ELBERG, S. S. (1953). **Cutaneous hypersensitivity in brucellosis. I. Characterization of an antigen for detection of cutaneous hypersensitivity in brucellosis. II. Chromatographic studies on the skin-test antigen.**—*J. Immunol.* **70,** 152-164 & 165-170. **1403**

I. The authors described the use of surface-active agents, especially sodium lauryl sulphate, in the preparation of a skin test antigen for *Br. suis;* they gave a detailed account of the isolation, purification and standardization of the antigen, and of the determination of its range of biological activity.

II. In further studies of the chemical and immunological properties of the antigen, using paper chomatography and butanol extraction, two brucella fractions, A and B, were separated from the antigen soluble in 95% sodium lauryl sulphate, the former representing the skin test antigen, the latter being inactive. Acid hydrolysis yielded the same 11 ninhydrin-reactive components from both fractions. Antiserum to *Br. suis* precipitated fraction B according to chromatographic data and bio-assay. The supernatant from the precipitin tests contained the allergen. Fraction A was non-antigenic when injected i/v into rabbits whereas fraction B readily stimulated agglutinin production.

—C. A. E. BRIGGS.

GWATKIN, R. & DZENIS, L. (1952). **Brucellosis. II. Effect of emulsifying agents on the antigenicity of ether-killed *Brucella abortus* in guinea pigs.**—*Canad. J. comp. Med.* **16,** 287-290. **1404**

Ether-killed *Br. abortus* suspended in saline-oil emulsion by means of "falba" (a lanolin-like substance) and "arlacel C" (a sorbitan derivative) protected a significant number of g. pigs against instillation of virulent culture into the conjunctiva. A similar emulsion prepared with another derivative "arlacel A" failed to afford significant protection.

—P. J. G. PLUMMER.

GESSERT, C. F., BERMAN, D. T., KASTELIC, J., BENTLEY, O. G. & PHILLIPS, P. H. (1952). **Concentrations of certain minerals in the blood and livers of cattle as related to trace mineral supplementation and bovine brucellosis.**—*J. Dairy Sci.* **35,** 693-698. [Authors' conclusions modified.] **1405**

A ration, the composition of which is given, apparently supplied abundant amounts of Cu, Zn, Co and Mn for Holstein cows, since dietary supplements of these minerals had little or no effect in changing the mean blood and liver concentrations in these animals.

Infection with *Br. abortus* in cows had no effect on the liver concentrations of Fe, Cu, Zn and Co and probably none on liver concentrations of Mn. The cattle which contracted induced infection had approx. the same concentrations of these five minerals in the liver as the cattle which were similarly exposed without becoming infected.

FAUSTINI, R. & ZAVAGLIO, V. (1952). Azione *in vitro* del cloramfenicolo, del 4-4′-diamino-difenil-sulfone, del 2 metil-1-4-naftochinone e loro rispettive associazioni sulla Br. melitensis e Br. abortus. [*In vitro* **action of chloramphenicol combined with 4 : 4′-diamino-diphenyl-sulphone and 2-methyl-1 : 4-naphthoquinone on *Br. melitensis* and *Br. abortus*.**] —*Arch. Vet. Ital.* **3,** 33-44. [English, French, German and Spanish summaries. Abst. from English summary.] **1406**

The authors found that 4 : 4′-diamino-diphenyl-sulphone and 2-methyl-1 : 4-naphthoquinone combined with chloramphenicol had a synergistic effect both *in vitro* and in g. pigs against *Br. abortus* and *Br. melitensis,* but neither of these drugs had a synergistic effect when combined with streptomycin, aureomycin or neomycin.—A. H. LINTON.

BUNNELL, D. E., BAY, W. W. & HUTCHINGS, L. M. (1953). **Studies on aureomycin therapy of brucellosis in swine.**—*Amer. J. vet. Res.* **14,** 160-163. **1407**

Therapeutic trials with aureomycin (as the hydrochloride injected i/p, or as a fermentation residue of its commercial production, *per os*) in pigs naturally or artificially infected with *Br. suis* yielded evidence of some possible therapeutic action, in that the organism was isolated from the blood of 6 and P.M. from at least one tissue of 15 out of 25 treated pigs, as compared with 14 and 17, respectively, out of 20 untreated controls.—F.E.W.

VICTOR, J. & BEALL, F. A. (1953). **Different respiratory effects of dog and human blood on *Brucella*.** — *Amer. J. Physiol.* **172,** 617-622. **1408**

The authors stated that the increased res-

piratory rate of a mixture of live *Brucella* organisms and washed dog blood cells is due to at least two factors, namely the respiration associated with phagocytosis and the stimulation of bacterial respiration by substances produced by the dog blood cells. Human blood cells do not have the latter effect.—E. A. GIBSON.

McCULLOUGH, N. B. & BEAL, G. A. (1951). **Growth and manometric studies on carbohydrate utilization of *Brucella*.**—*J. infect. Dis.* **89**, 266-271. **1409**

Four strains of each *Brucella* species were examined for oxygen uptake and growth with sugars as the only source of carbon and energy. *Br. suis* strains grew with all compounds, *Br. melitensis* in most; *Br. abortus* exhibited a narrower range of activity.—JOHN SEAMER.

SCHAFFER, K. (1951). La tularémie en Autriche. **[Tularaemia in Austria.]**—*Bull. Off. int. Epiz.* **36**, 156-167. [English summary and conclusions.] **1410**

All the cases of tularaemia diagnosed in Austria since 1935 were found along the Danube or its tributaries. The water rat is regarded as the first source of infection although other rodents have been infected from it and most human infections have occurred through hares and mice. In hares diagnosis may be confirmed by inoculation of tissue into mice or g. pigs, followed by culture. Streptomycin is the best curative drug. Strict regulations have been enforced to control the spread of the disease.
—A. MAYR-HARTING.

GARANIN, F. N. (1953). **[Control of *Borrelia anserina* infection.]**—*Veterinariya, Moscow.* **30**, No. 5. p. 24. [In Russian.] **1411**

A general account of the control of *B. anserina* infection in fowls and of measures for controlling the tick vectors. For treatment G. advocated acaprin, together with symptomatic treatment.—F. A. ABBEY.

VAN DER HOEDEN, J. (1953). *Leptospira grippotyphosa* **strains in Israel.**—*Trans. R. trop. Med. Hyg.* **47**, 364-371. **1412**

By cross-absorption tests the author found that there is no evidence for separating *L. bovis* from *L. grippo-typhosa*. Intraperitoneal inoculation of mice indicated that the Geffen strain should not for the present be separated from the strains of *L. grippo-typhosa*.
—W. S. MARSHALL.

HARTWIGK, H. & STOEBBE, E. (1952). Kultureller Nachweis von Leptospiren bei Hund und Pferd. **[Demonstration by culture of *Leptospira* in dogs and horses.]**—*Berl. Münch. tierärztl. Wschr.* **65**, 188-190 & 212-214. **1413**

The authors isolated *L. canicola* in pure culture from the kidney and the bladder of two dogs suspected to have died from leptospirosis and from the venous blood and aqueous humour of two horses with periodic ophthalmia.
—H. BEHRENS.

ZAHARIJA, I. (1953). Leptospiroza pasa u Zagrebu. **[Leptospira infection in dogs in Zagreb.]**—*Vet. Arhiv.* **23**, 82-86. [In Croat. English and French summaries.] **1414**

In 1951 the combined incidence of positive serological reactions to *L. icterohaemorrhagiae* and *L. canicola* of dogs in Zagreb was 25·5%. In 1952 it was 45·3%. Sera which gave a negative reaction to the above species occasionally gave positive reactions to *L. grippo-typhosa, L. sejroe, L. australis, L. pomona, L. mitis, L. saxkoebing, L. bataviae* or *L. ballum*.
—I. MARTINI.

KRÜGER, A. (1953). Immunisierungsversuche gegen die Kanikolaleptospirose der Hunde. **[Experimental immunization against *L. canicola* infection in dogs.]**—*Berl. Münch. tierärztl. Wschr.* **66**, 371-373. [English summary.] **1415**

A s/c injection of 1 ml. of a formolized aluminium hydroxide adsorbed *L. canicola* vaccine, given twice at an interval of 14 days, protected dogs against an i/p inj. of a virulent culture of *L. canicola* given 14 days after the second injection of vaccine. No leptospira could be demonstrated in the blood or urine of the immunized dogs and antibody could be detected in their blood from the 5th day after the first injection of vaccine up to 6 months.
—A. ACKROYD.

OAKLEY, C. L., ROSS, H. E., PAYLING WRIGHT, G., MACFARLANE, M. G., GORDON, W. S., VAN HEYNINGEN, W. E. [Speakers] (1950). **Discussion on clostridial toxins in relation to type-specificity for different species of host.** —*Proc. R. Soc. Med.* **43**, 883-892. **1416**

Oakley considered that the nature of the toxins precluded any type-specificity and discussed *Cl. welchii* types A–F, *Cl. tetani* and *Cl. oedematiens* on this basis.

Ross pointed out that, while no single toxin of the 20 identified (14 of which are lethal), is host-specific, 4 are exceptional in that they are the main cause of fatal toxaemias in sheep. Two of these, the β- and ϵ-toxins of *Cl. welchii* (from types B–D, F) were considered in some detail.

Payling-Wright gave a broad literary

survey of *Cl. welchii* infections as problems of bacterial intoxication and discussed the relation of *Cl. welchii* type A to α-toxin (lecithinase), κ-toxin (collagenase), θ-haemolysin and hyaluronidase.

Macfarlane examined the rate of hydrolysis of phospholipins by the different lecithinases of *Cl. oedematiens* and *Cl. welchii;* Gordon the relation between *Cl. welchii* type D and grass sickness in horses, and Van Heyningen the quantitative differences of toxins (*Cl. tetani* and *Cl. bifermentans*) with the same reaction and neutralized by the same antitoxin, in relation to their toxicity.—MALCOLM WOODBINE.

JONES, L. W. & CLIFTON, C. E. (1953). **Metabolism and nutrition of *Clostridium feseri*.**—*J. Bact.* **65,** 560-564. [Abst. from authors' summary.] **1417**

A detailed account of studies on the nutritional requirements of *Cl. chauvoei* (*Cl. feseri*). It produces a mixed-acid type of fermentation in broth or in glucose, pyruvic acid or serine separately; other amino acids are not readily fermented either singly or when paired with glycine or proline. It grows well in a glucose medium containing enzyme digest of casein with certain B vitamins. The organism appears to require an undetermined growth factor which may be identical with " streptogenin ".

ANON. (1954). **Tetanus immunization for horsemen.**—*J. Amer. med. Ass.* **154,** 62. **1418**

An editorial on the subject in which it is stated that adults who ride horses all the year round and are frequently in stables should be protected against tetanus by the use of tetanus toxoid followed by booster injections, the booster injections being given at intervals of 1 or 2 years. [Veterinary readers may be surprised to hear of this advice and may wonder if the risks to those handling horses are as great as is here suggested.]

STUBBS, E. L. (1951). **Botulism in ducks or duck sickness.**—*Vet. Ext. Quart. Univ. Pa.* No. 124. pp. 10-16. **1419**

Clostridium botulinum, Type C, developing in stagnant water, can produce a toxin, which, when ingested by wild ducks or geese, produces botulism which is frequently fatal.

—R. MARSHALL.

MCGAUGHEY, C. A. & BANDARANYAKE, A. (1953). **Moniliasis in guinea-fowl chicks and other poultry.**—*Ceylon vet. J.* **1,** 43-44. [Authors' summary copied *verbatim.*] **1420**

Moniliasis due to *Candida albicans* was found in guinea-fowl chicks and domestic chicks in Ceylon.

GIUSTI, G. (1952). Ricerche sperimentali sui rapporti fra moniliasi e penicillina. [**Relationship between moniliasis and penicillin.**]—*G. Batt. Immun.* **44,** 434-442. [English, French and German summaries.] **1421**

Having observed saccharomycetes on pathological materials from patients undergoing antibiotic prophylaxis or treatment, G. carried out animal experiments to determine whether penicillin could effect the conversion of saprophytic to pathogenic forms and *vice versa* in two strains of *Candida albicans* isolated respectively from sputum and urine. He found that penicillin alone could not effect such conversion, and that agglutination tests on serum of penicillin-treated rabbits, which had previously been immunized with a strain of *C. albicans* non-pathogenic for the species, revealed a fall in agglutination titre as compared with the titre in the controls not treated with penicillin.—K. J. SINCLAIR.

KAPUR, J. D. (1952). **Epizootic lymphangitis.**—*Indian vet. J.* **28,** 341-343. **1422**

K. described what was considered to be an atypical, mild outbreak of epizootic lymphangitis introduced into India from Burma. There was no cording of lymphatic vessels. Occasionally there was conjunctivitis, sometimes with ulcers the size of a pin's head on the membrana nictitans, and sometimes there was suppuration of a submaxillary lymph node. Testing with synthetic cryptococcin gave inconsistent results.—P. C. GANGULEE.

HOLZWORTH, J. & COFFIN, D. L. (1953). **Cryptococcosis in the cat : a second case.**—*Cornell Vet.* **43,** 546-550. **1423**

Histological examination of a submucous mass involving the pterygoid and presphenoid bones of a 6-year-old spayed female cat in Massachusetts in 1952 revealed a diffuse yeast-cell infiltration in the interstices of the bone trabeculae which was diagnosed as *Cryptococcus neoformans* infection. No cultures were made.

Like the earlier case of cryptococcosis in the cat reported by Holzworth [*V.B.* **23,** 1848] the clinical features, an upper respiratory disease of some duration (but without marked disability or wasting) in a middle-aged animal, were attributed to a neoplasm and the authors suggested that instances of this condition must from time to time go unrecognized.

—G. C. AINSWORTH.

I. CARLL, W. T., FORGACS, J. & HERRING, A. S. (1953). **Toxic aspergilli isolated from a food concentrate.**—*Vet. Med.* **48,** 324 & 342. 1424

II. FORGACS, J., CARLL, W. T., HERRING, A. S. & MAHLANDT, B. G. (1953). **Toxic fungus isolated from feed pellets.** — *Ibid.* 410-411. 1425

I. The authors reported the isolation of three species of *Aspergillus* from a sample of the food concentrate used by Olafson & McEntee [*V.B.* **21,** 3327] to produce hyperkeratosis in cattle. One of these fungi, *Aspergillus* P3, was grown on bread and the death of two calves was induced by feeding one with 23 lb. of infected bread in 5 days and the other with 16·8 lb. in 4 days while a control animal remained healthy after receiving 25 lb. of untreated bread in 5 days. The lesions produced were characterized by extensive haemorrhage of the trachea, lungs, liver and other organs and degenerative changes were noted in the liver and kidneys.

II. An account of further experiments with a mould identified as *Aspergillus clavatus* [? = *Aspergillus* P3] in which calves died after feeding with maize on which the fungus had been grown. In both series of experiments smaller doses administered over longer periods (17·6 lb. toxic bread in 31 days; 36 lb. toxic maize in 33 days) induced lachrymation, thickening and wrinkling of the skin along the cheeks and neck, overgrowth of the keratin layer of the cornea, dilation of the collecting tubules of the liver, and stimulation of the reticulo-endothelial tissue of the liver, *i.e.*, of some of the symptoms observed in field cases of hyperkeratosis (X disease).

—G. C. AINSWORTH.

BEERENS, H. (1953). Étude comparative de six souches de bactéries anaérobies non sporulées: *Actinomyces bovis* A.T.C.C. 8373 (bovine), *A. bovis* A.T.C.C. 8374 (humaine), *A. israeli* var. *liquefaciens, Corynebacterium acnes, Corynebacterium avidum, Corynebacterium liquefaciens.* [**A comparative study of** *Actinomyces bovis, A. israeli* **and certain corynebacteria.**]—*Ann. Inst. Pasteur.* **84,** 1026-1032. 1426

It is concluded, from the results which are briefly summarized and tabulated, that as the six isolates examined were morphologically, physiologically and biochemically identical and had antigens in common they should all be classified as one species.—G. C. AINSWORTH.

✓MCGAUGHEY, C. A., BATEMAN, J. K. & MACKENZIE, P. Z. (1951). **Actinomycosis in the dog. Report of a case.**—*Brit. vet J.* **107,** 428-430. 1427

A brief note on a case diagnosed clinically as actinomycosis in a dog which died from pneumonia and pleurisy following operative treatment of a chronic poll lesion. Diagnosis was based on bacteriological examination of pleural exudate. McGaughey recorded very briefly characters in culture media, without naming the organism.—E. J .H. FORD.

THORDAL-CHRISTENSEN, A. & CLIFFORD, D. H. (1953). **Actinomycosis (nocardiosis) in a dog: with a brief review of this disease.**—*Amer. J. vet. Res.* **14,** 298-306. [Abst. from authors' summary.] 1428

The authors reviewed literature concerning the various forms of canine actinomycosis, giving 47 references, and recorded the clinical and pathological findings in a case of "hard pad" disease complicated by actinomycotic lesions in the lungs, kidneys, and other abdominal organs. Bacteriological study of the micro-organism indicated that it belonged to the genus *Nocardia.*

HAJSIG, M. (1952). Etiologija i mikrobiološka dijagnostika "aktinomikotičnih" oboljenja. [**Aetiology and diagnosis of actinomycosis.**] —*Vet. Glasnik.* **6,** 341-346. [French summary.] 1429

A conventional account of the various conditions in animals that comprise "actinomycosis".—I. MARTINI.

✓RAMSEY, F. K. & CARTER, G. R. (1952). **Canine blastomycosis in the United States.**—*J. Amer. vet. med. Ass.* **120,** 93-98. [Abst. from authors' summary.] 1430

At least 16 cases of *Blastomyces dermatitidis* infection in dogs have been recognized in the U.S.A. It is believed that probably many cases have passed undiagnosed. The authors gave an account of the disease, based upon the salient characteristics of 14 infections. It is a chronic infection with granulomatous processes which often suppurate. Lesions are most commonly observed in the lungs and skin.

All recorded cases in the dog have terminated fatally. Because of the danger of transmission of the pathogen to man, treatment is not recommended.

The authors gave a list of the recorded cases, with references and brief details of the clinical features of each. There are three figures detailing the organism and lesions.

PRIETO, C. & PIRES, A. (1953). La rhinosporidiose est une antropozoonose. [**Rhinosporidiosis, a disease of man and animals.**]—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1**, Pt. 1. 23-26. [In French. English and German summaries.] **1431**

The authors described 5 cases of nasal granuloma in horses in Argentina caused by *Rhinosporidium seeberi*. The lesions tended to recur after surgical removal.—R.M.

HARE, P. J. (1953). **Amino-acid composition of eight dermatophyte fungi.**—*Lancet.* **265**, 1238-1239. **1432**

Qualitative analysis by paper chromatography of the acid hydrolysates of eight dermatophytes (*Microsporum audouini, M. canis, M. gypseum, Trichophyton mentagrophytes, T. rubrum, T. discoides, T. violaceum,* and *Epidermophyton floccosum*) grown on a simple liquid medium containing ammonium sulphate as the nitrogen source revealed the presence of the same 16 amino-acids and the absence of hydroxyproline in each preparation. Judged by the size and intensity of the colour of the spots the amino-acids in greatest concentration were the leucines, valine, alanine, glutamic acid, and aspartic acid.—G. C. AINSWORTH.

SHERIFF, D. & PIERCY, S. E. (1953). **Further observations on an avianized bovine pleuro-pneumonia vaccine in Kenya.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1**, Pt. 1. 333-338. [In English. French and German summaries.] **1433**

A freeze-dried vaccine prepared from egg-adapted bovine contagious pleuro-pneumonia organisms was used extensively in Kenya in isolated outbreaks of the disease and also in an area where the disease was enzootic but quiescent. Death or severe reaction was only observed in herds in which an active and early infection was present. Evidence of the ability of this vaccine to control bovine contagious pleuro-pneumonia is not yet conclusive.—R.M.

BLANCO LOIZELIER, A. (1950). Pleuroneumonia infecciosa de la cabra. Estudio de un foco de pleuroneumonia infecciosa de la cabra en Talayuela (Caceres). [**Caprine contagious pleuro-pneumonia in Spain.**]—*Trab. Inst. Biol. anim. Madr.* **9**, pp. 323-329. **1434**

The author reported, for the first time in Spain, the existence of caprine contagious pleuro-pneumonia. The causal organism was grown *in vitro* and on the chorio-allantoic membrane of chick embryos.—I. W. JENNINGS.

RANSMEIER, J. C., BROWN, H. E. & DAVIS, N. (1951). **Comparison of *in vitro* sensitivity of freshly isolated pathogenic bacteria to terramycin and other antibiotics (aureomycin, chloramphenicol, penicillin, and streptomycin).**—*J. Lab. clin. Med.* **38**, 620-630. **1435**

The authors found that of 135 strains of bacteria studied, these covering a wide range of pathogens isolated from human patients, and some stock strains, all were sensitive to one or other antibiotic except for *Proteus* species, 4 of the strains of *Staph. aureus* and 2 of the strains of *Staph. albus*. There were striking variations in the sensitivity of species of *Pseudomonas* and *Str. faecalis*.—MALCOLM WOODBINE.

SMOLENS, J. & VOGT, A. B. (1953). **Studies on antibiotic resistance and the nucleic acid content of bacteria.**—*J. Bact.* **66**, 140-146. **1436**

Haemophilus pertussis and *Staphylococcus pyogenes* var. *aureus* vary in the proportion of cells resistant to streptomycin according to the medium on which they are grown. The increase in resistance is linked with a rise in ribonucleic acid content which also occurs when *H. pertussis* is made resistant to streptomycin or terramycin by subculture.—A. SEAMAN.

PARVIS, D. (1953). Sul comportamento del nucleo in batteri sottoposti all'azione di antibiotici. [**Behaviour of the nucleus in bacteria subjected to the action of antibiotics.**]—*Boll. Ist. sieroter., Milano.* **32**, 282. [Abst. from English summary.] **1437**

P. described morphological changes which occurred in some species of bacteria when exposed to various antibiotics. *Bact. coli,* with penicillin, produced filamentous polynucleate elements and large polynucleate vesicular elements; with aureomycin the vesicular elements were not observed. Less characteristic changes occurred after exposure to streptomycin and chloramphenicol. When *Staph. aureus* was exposed to penicillin the morphological changes were pronounced but non-specific.

MORSE, E. V., RISTIC, M., ROBERTSTAD, G. W. & SCHNEIDER, D. W. (1953). **Cross-agglutination reactions among *Brucella, Vibrio,* and other microörganisms.**—*Amer. J. vet. Res.* **14**, 324-327. [Abst. from authors' summary.] **1438**

Cross-agglutination reactions revealed that *S. pullorum, V. fetus,* and species of *Brucella* are antigenically related. The effect of this relationship upon the various agglutination

diagnostic tests is unknown. *Pasteurella tularensis* and *V. cholerae* share antigenic components with *Brucella* but not with *V. fetus*. The authors suggested that these findings may be of value in salmonella typing.

SEELEMAN, M. & RACKOW, H.-G. (1953). Zur Schutzimpfung gegen die Bruzellose und Tuberkulose des Rindes. **[Vaccination of cattle against brucellosis and TB.]**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 117-123. [In German. English and French summaries.] **1439**

The authors briefly described the control of brucellosis in cattle by the use of Strain 19 *Br. abortus* vaccine, and discussed the control of TB. by the use of B.C.G. or the attenuated live vaccine (" strain P ") described by Gräub with reference to experimental vaccination in cattle. —R.M.

SCHULZE, J. (1953). Meningitis purulenta beim Pferde. Ein Beitrag zum differentialdiagnostischen Wert der Liquorpunktion. **[Differential diagnosis of purulent meningitis in horses by examination of the cerebrospinal fluid.]**—*Mh. VetMed.* **8,** 165-166. **1440**

A note on purulent meningitis in a horse occurring as a complication of empyema of a paranasal sinus. *Fusiformis necrophorus* and staphylococci were isolated in pure culture. —H. BEHRENS.

LEDERBERG, J. & TATUM, E. L. (1953). **Sex in bacteria : genetic studies, 1945 - 1952.**—*Science.* **118,** 169-175. **1441**

Small but significant numbers of cells of certain strains of *Bacterium coli* especially K 12, when grown in mixed cultures under suitable conditions, undergo a process of recombination of genes governing a wide variety of characters. This process apparently involves a cell-to-cell contact and presumably zygote formation. Analysis of the recombination products indicates that the genes are present in linear order on one or more of the chromosomes. Sexuality with the transfer of genetic material probably occurs also in other micro-organisms.—A. ACKROYD.

FOLLIS, R. H., JR., BURNETT, J. M. & LOUSCHERER, Z. E. (1952). **The effect of specific antibody on the oxygen consumption and growth of** *S. marcescens, S. typhosa* **and** *Sh. paradysenteriae.*—*Johns Hopk. Hosp. Bull.* **91,** 463-474. **1442**

The authors studied the oxygen metabolism of four strains of *Serratia marcescens* [*Chromobacterium prodigiosum*], one strain of *Salmonella typhi,* and one strain of *Shigella paradysenteriae,* in the presence of specific antisera. The agglutinated organisms grew more rapidly, and consumed more oxygen. The authors discussed possible mechanisms underlying this phenomenon.—A.S.

ANDERSON, R. E., STEIN, L., MOSS, M. L. & GROSS, N. H. (1952). **Potential infectious hazards of common bacteriological techniques.**—*J. Bact.* **64,** 473-481. **1443**

Using a sieve type air sampling apparatus (illustrated) by means of which 75–80% of the bacteria entering the sampler in air drawn in at 1 cu. ft. per min. are impinged on an agar surface, the authors sampled the air at the levels of the worker's hands and nose and above and below the laboratory apparatus in use during nine common bacteriological techniques performed repeatedly in different ways but with normal care. Several accidents that might occur were similarly studied. *Chromobacterium indicum* was used as the test organism, cultured under conditions providing a count of 109 organisms per ml. The most hazardous techniques were found to be those involving splashing or bubbling, *e.g.* the shaking of liquid cultures. Considerable aerosols escape from Waring blendors both during operation and up to 1½ hours after the current has been switched off. The authors suggested that they should be used in a ventilated bacteriological cabinet with facilities for decontamination before removal; similarly liquid culture tubes should be opened in such a cabinet when highly infective organisms are being used. Inoculation loops should be cooled after flaming before insertion in such a culture. The use of a cotton pledget soaked in alcohol around a syringe needle during withdrawal from a rubber-stoppered vaccine bottle helped to reduce the aerosol released by the vibration of the needle.—F.E.W.

FLORENT, A. (1953). Les borrelomycétacés ou organismes du type péripneumonie (pleuropneumonia like organisms) au niveau de l'appareil génital de la bête bovine—culture sur oeuf embryonné de poulet. **[Pleuropneumonia-like organisms in the genital tract of cattle : culture on the chick embryo.]**—*Proc. XVth Int. vet. Congr. Stockholm,* 1953. **1,** Pt. 1. 354-359. [In French. English and German summaries.] **1444**

F. isolated pleuropneumonia-like organisms from the prepuce of normal bulls and from 10 out of 16 semen samples from bulls of normal fertility. Saprophytic forms were isolated from the vagina and uterus of 17 out of 31 fertile

heifers and 13 out of 105 cows. The authors cultivated saprophytic and pathogenic strains of the organisms in fowl embryos.—R.M.

POLLARD, M. & PARMER, D. G. (1952). **Observations on a *Bartonella* organism in cattle.**—*Tex. Rep. Biol. Med.* **10**, 73-75. **1445**

Basophile pleomorphic organisms 0·5–1·5 μ in length, which resembled *Bartonella,* were observed in r.b.c. of two cows in Texas. The symptoms were rapid loss of weight, anaemia, dyspnoea and high body temperature. Haemoglobinuria and jaundice were not observed.

—R.M.

See also absts. **1613** (mastitis, vibriosis, TB. and brucellosis in Israel); **1617-1618** (pullorum disease); **1622** (aspergillosis in chicks); **1723** (report, Basutoland); **1725** (report, U.S.A.).

DISEASES CAUSED BY PROTOZOAN PARASITES

MORNET, P. (1953). La trypanosomiase bovine en Afrique occidentale française. Prophylaxie chimiothérapique. **[Chemotherapy in control of bovine trypanosomiasis.]**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1**, Pt. 1. 8-12. [In French. English and German summaries.] **1446**

M. described the use of antimony sodium tartrate, suramin, antrycide (quinapyramine), dimidium chloride (7 amino-9(*p*-amino phenyl)-10-methyl phenanthridinium chloride) and lomidine (4-4′ diamidino-diphenoxypentane) in the control of trypanosomiasis in cattle in French West Africa.—R.M.

WILSON, S. G. (1953). **The development of drug resistance in trypanosomes.** — *Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1**, Pt. 1. 12-17. [In English. French and German summaries.] **1447**

W. examined the behaviour in experimental cattle of 6 drug-resistant strains of *T. congolense.* The strains were obtained in Kenya from cattle naturally infected with trypanosomiasis which had failed to respond to treatment with dimidium bromide and/or quinapyramine sulphate.—R.M.

DĘBSKI, J. (1950). Drogi zakażenia organizmu świdrowcem końskim *Trypanosoma equiperdum* (Doflein 1901). **[Experimental infection of g. pigs with *T. equiperdum*.]**—*Proc. 2nd. Meet. Polish Parasitol. Soc.* p. 83. [English summary p. 133; Russian summary p. 119.] **1448**

Attempts were made to infect g. pigs with blood containing *T. equiperdum* through the intact mucosae of the conjunctival sac, the respiratory tract and the alimentary tract; infection was set up by the first two routes.

—J. R. MITCHELL.

DESOWITZ, R. S. & WATSON, H. J. C. (1953). **Studies on *Trypanosoma vivax*. IV. The maintenance of a strain in white rats without sheep-serum supplement.**—*Ann. trop. Med. Parasit.* **47**, 62-67. **1449**

The supplemented line ceased to be dependent on serum supplement after the 70th serial sub-passage. An unsupplemented line was isolated from the control of the 37th sub-passage. The unsupplemented line produced a mortality of 25%. Splenectomy did not affect the course of the infection. Rat adaptation of the strain was lost when the trypanosome was passed back to sheep. The morphology of the parasite remained constant during the experiments.

—JAS. G. O'SULLIVAN.

RAFYI, A. & MAGHAMI, G. (1953). Action préventive et curative du méthylsulfate d'antrycide dans la trypanosomiase à *T. evansi.* **[Preventive and curative action of antrycide in surra in camels.]**—*Bull. Soc. Path. éxot.* **46**, 676-680. **1450**

Antrycide, 5 mg./kg. given s/c protected rats for two and a half months, while 5–10 mg./kg. cured infections of *T. evansi.*

One case of surra in a camel was cured by the administration of 2 g. of the drug.

—JAS. G. O'SULLIVAN.

TOBAR, R. G. & THIERMANN, E. (1950). Comprobacion de la existencia de un nuevo Trypanosoma en el pais. **[*Trypanosoma rangeli* in Chile.]**—*Bol. Inf. Parasitol., Chile.* **5**, 23-25. [English summary.] **1451**

In the course of their work on Chagas' disease (*T. cruzi* infection) the authors encountered another trypanosome (*T. rangeli*) in the intestinal contents of bugs (*Triatoma infestans*) found in a house. This is the first report of *T. rangeli* from Chile.—A.S.

ANSARI, N. & FAGHIH, M. (1953). Leishmaniose cutanée à *L. tropica* chez *Rhombomys opimus.* **[Cutaneous leishmaniasis in a wild rodent, *Rhombomys opimus*.]**—*Ann. Parasit. hum. comp.* **28**, 241-246. **1452**

Of 75 *Rhombomys* (a rat-like rodent) examined, 8 had ocular lesions from which *L. tropica* was recovered.—JAS. G. O'SULLIVAN.

KENDRICK, J. W. (1953). **An outbreak of bovine trichomoniasis in a group of bulls used for artificial insemination.**—*Cornell Vet.* **43,** 231-240. **1453**

A description of an outbreak of bovine trichomoniasis in a group of 7 bulls used for A.I. The breeding records of 1,594 cows over a 6-month period revealed no significant difference in fertility between infected and clean bulls. K. believed that the reason for the good conception rate of the infected bulls could be related to the technique used in obtaining and storing semen: few of the trichomonads reached the apex of the artificial vagina and those which did were greatly depleted in numbers, firstly by dilution, and secondly by the storage temperature of 40°F., which was unfavourable to them. —A.S.

HOLZ, J. (1953). Die Bedeutung von *Musca domestica* als Überträger von *Trichomonas foetus.* [**Role of *M. domestica* in the transmission of *Tr. foetus*.**]—*Tierärztl. Umsch.* **8,** 396-397. **1454**

Freshly emerged *M. domestica,* laboratory reared, were fed on a pure culture of *Tr. foetus,* and were killed at 15-min. intervals thereafter. Flagellates were found in the crops up to 5 hours after feeding. Transmission could thus occur during regurgitation.—M. L. CLARKE.

PRAY, E. G. (1952). **The effects of various bacteria and their metabolites on growth of *Trichomonas vaginalis in vitro*.**—*J. Parasit.* **38,** 398-408. [Author's summary modified.] **1455**

P. investigated the effects of various bacteria on three stock strains of *Tr. vaginalis* (Vanderbilt, Indiana University), and on one non-standard strain. They used the medium described by Sprince and Kupferberg. In their effects, the bacteria fell roughly into three groups: (1) those which strongly inhibited the multiplication of trichomonas and the life of the culture (*Bact. coli, Bact. aerogenes, Pseudomonas pyocyanea, Salmonella schottmülleri, Proteus mirabilis,* and *S. paratyphi*); (2) those with various effects on multiplication but always causing some decrease in life of the culture (*Brucella suis, Streptococcus lactis, Pseudomonas fluorescens, Alcaligenes faecalis, Sarcina lutea,* and *Bacillus subtilis*); and (3) those which prolonged the life of the culture beyond that of bacteria-free controls, but with the flagellate population never exceeding that of the controls at any given time (*Staphylococcus aureus* and *Staph. albus*).

Changes in pH and oxidation-reduction potentials gave no indication that the effects of bacteria were due to such changes.

Filtrates of bacterial culture gave no indication that specific metabolites or antagonistic substances were responsible for the effects observed.

Nutritional studies showed that of the various components of the medium, maltose seemed to be the important one for which there was competition between the flagellate and bacteria inhibiting it most. However, in the presence of abundant maltose and such bacteria, *Tr. vaginalis* may attain a higher population peak than with maltose alone. When used to enrich the medium, glucose was found to be as effective as maltose in prolonging the life of the trichomonad culture in the presence of bacteria which had an inhibiting effect.

STABLER, R. M. & MELLENTIN, R. W. (1953). **Effect of 2-amino-5-nitrothiazole (enheptin) and other drugs on *Trichomonas gallinae* infection in the domestic pigeon.**—*J. Parasit.* **39,** 637-642. **1456**

Of the drugs tested in pigeons infected with two virulent strains of *Tr. gallinae* and in chronically infected pigeons, enheptin (2-amino-5-nitrothiazole) was effective, the minimal effective dosage for domestic pigeons (weighing 350–550 g.) being 5 mg. daily. Seven daily doses ranging from 10 to 25 mg., according to breed, were well tolerated and effectively removed the parasites. Drug-fastness did not occur. Daily dosage ranging from 50–100 mg. according to breed was lethal in 5 of 6 birds of 3 breeds. The drug was given in gelatin capsules and trials of the drug administered in the food or in the drinking water are necessary. The following were ineffective:— a combination of crystalline potassium penicillin, sulphadiazine, sulphamerazine and sulphamethazine; aureomycin; and nitrophenide.—F.E.W.

MCGREGOR, J. K. (1953). **Further observations on the use of 2-amino-5-nitrothiazole as a prophylactic and therapeutic agent in the control of blackhead (enterohepatitis) in turkeys.**—*Canad. J. comp. Med.* **17,** 267-270. **1457**

2-Amino-5-nitrothiazole was prepared and administered in various ways to turkeys exposed to *Histomonas* infection. Used continuously in the feed a dosage of 0·05 or 0·035% was efficient, less so when given on alternate days at 0·05% and gave but variable results when added to the drinking water.

—P. J. G. PLUMMER.

SLAVIN, D. & WILSON, J. E. (1953). **Hexamita meleagridis.**—*Nature, Lond.* **172,** 1179-1181. **1458**

The life-cycle consisted of the formation of a binucleate cyst, the production of invasive forms which penetrate reticulo-endothelial cells. There followed the development of schizonts, merozoites and finally the mature flagellates. The authors believe that *H. muris* and *H. meleagridis* should be placed in separate genera. Turkeys, given ' entramin ' (aminonitrothiazole) in drinking water, had a higher survival rate than controls.—JAS. G. O'SULLIVAN.

PELLÉRDY, L. & BABOS, A. (1953). Untersuchungen über die endogene Entwicklung sowie pathologische Bedeutung von Eimeria media. [**Pathology of *Eimeria media* infection in the rabbit.**]—*Acta vet. hung.* **3,** 173-188. [In German. Russian summary.] **1459**

Administration of 50,000 oocysts of *E. media* to rabbits, 4–7 weeks old, regularly gave rise to a fatal intestinal infection. The authors described the course of the infection and the stages in the life cycle and illustrated histological details with the aid of photomicrographs.

—L. P. JOYNER.

NICKEL, E. A. (1952). Die Kokzidieninfektion und ihre Bekämpfung beim Kaninchen unter besonderer Berücksichtigung von Sulfanilamid- und Sulfonverbindungen. [**Control of coccidiosis in rabbits by use of sulphonamides.**]—*Arch. exp. VetMed.* **6,** 25-26. **1460**

A previously undescribed oocyst was found in rabbits in the course of daily faecal examinations over a long period. The coccidiostatic action of the sulphonamide preparations " eleudron " (sulphathiazole) and " aristamid ", and the sulphone compound B **1105,** using an interrupted scheme of dosage, was investigated. The latter drug proved the most toxic.—M. L. CLARKE.

GREENBERG, J. & COATNEY, G. R. (1953). **The eradication of blood-induced *Plasmodium gallinaceum* infections in the chick.**—*Amer. J. Hyg.* **57,** 101-113. **1461**

While blood-induced *Plasmodium* infections in man, monkeys and rodents can be eradicated by a number of antimalarial drugs, blood-inoculated malarias in birds have been difficult to cure. Studies were carried out to determine the effect of various anti-malarial agents on *Pl. gallinaceum* infections produced by inoculation of varying numbers of parasitized r.b.c.

—S. BRIAN KENDALL.

MCGHEE, R. B. (1953). **The infection by *Plasmodium lophurae* of duck erythrocytes in the chicken embryo.**—*J. exp. Med.* **97,** 773-782. **1462**

Duck erythrocytes introduced into chick embryos are more susceptible than chick erythrocytes to invasion by merozoites of *Pl. lophurae.* The greater susceptibility may be due to the greater number of accessible areas on the erythrocyte surface. Once parasitized the erythrocyte is less susceptible to further invasion.

—S. F. M. DAVIES.

ZLOTNIK, I. (1953). **Cerebral piroplasmosis in cattle.**—*Vet. Rec.* **65,** 642-643. **1463**

This paper describes a rapidly fatal condition occurring in animals of all ages in the Southern Province of Nyasaland.

The symptoms were sudden pyrexia, laboured respiration; mucous membranes were injected and sometimes jaundiced. Death occurred after 12–36 hours, recovery being rare.

In all but 2 out of 15 cases, examination of blood smears was negative and in two animals which survived, a few r.b.c. were found to contain typical forms of *Babesia bigemina.*

Spleen smears were consistently negative, but brain smears invariably revealed enlarged capillaries with swollen endothelial cells, the lumina being filled with r.b.c. each containing a pair of contracted forms of *Babesia.* In one calf examined a few hours after the onset of symptoms the cerebral capillaries contained typical forms of *B. bigemina.*—L. P. JOYNER.

PILLAI, P. B. K. (1953). **The use of paludrine lactate (I.C.I.) in canine piroplasmosis.**—*Reporter, Ceylon.* **1,** No 2. p. 43. [Mimeographed.] **1464**

Paludrine lactate 2 to 5 ml. i/v " according to size and age of animal " cleared the parasitaemia in 4 days when given to 25 dogs with *Babesia gibsoni* infection. Five of them died in spite of treatment.

—JAS. G. O'SULLIVAN.

MIRANDA ENTRENAS, S. & MEDINA BLANCO, M. (1953). La theileriose bovine au sud de l'Espagne. [**Theileriasis in cattle in Spain.**]—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 34-36. [In French. English and German summaries.] **1465**

Most cases of piroplasmosis in cattle in Spain were caused by *Theileria annulata.* The disease was most common in the province of Cordova, since the terrain favours ticks of the genus *Hyalomma.* The chief control measure was tick eradication.—R.M.

NEVZAT TÜZDIL, A. (1953). La theileriose à Theileria annulata (Dschunkowsky et Luhs, 1904) en Turquie. [*Theileria annulata* **infec-**

tion in Turkey.]—*Proc. XVth Int. vet. Congr. Stockholm,* 1953. **1,** Pt. 1. 31-34. [In French. English and German summaries.] **1466**

The author made general observations on *Th. annulata* infection of cattle in Turkey. The commonest intermediate host was *Hyalomma aegyptium.* Treatment consisted of the i/v injection of trypaflavine solution.—R.M.

TSUR (TCHERNOMORETZ), I. (1953). *Theileria annulata* et *Leishmania* en culture de tissu. [*Theileria annulata* **and** *Leishmania* **sp. in tissue culture.**]—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 26-31. [In French. English and German summaries.] **1467**

T. described the growth of *Th. annulata* in tissue culture of small pieces of spleen or lymph node taken from calves infected with *Theileria.* The addition of glutamine, pyridoxine, inositol, and riboflavin to the tissue culture favoured multiplication of the organism.

Leishmania infantum and *L. donovani* were grown in tissue culture of pieces of spleen taken from hamsters infected with these organisms.—R.M.

ROSSI, P. (1953). Anaplasmose bovine française. [**Anaplasma infection in cattle in France.**]—*Encycl. vét.* No. 1/2. pp. 18-22. **1468**

An account of a series of outbreaks of anaplasmosis in cattle which followed the accidental transmission of *A. marginale* in citrated bovine blood during preventive inoculations against F. & M. disease.—S. F. M. DAVIES.

MOHLER, W. M. & GATES, D. W. (1953). **Present status of the complement fixation test for the diagnosis of anaplasmosis.**—*Proc. 56th Ann. Meet. U.S. live Stk sanit. Ass.* pp. 61-64. **1469**

Limited success has been achieved in diagnosing carriers of anaplasmosis by the c.f. test. Limiting factors are the difficulty of producing a satisfactory antigen consistently, variations in the antigenic value of the antigen and the occurrence of false reactions.—S. F. M. DAVIES.

BIERING-SØRENSEN, U. (1953). Et tilfaelde af toxoplasmosis cuniculi i Danmark. [**Toxoplasmosis in a rabbit in Denmark.**]—*Nord. VetMed.* **5,** 417-426. [In Danish. English and German summaries.] **1470**

This case did not differ greatly from previous cases described. Necrosis of the mesenteric lymph nodes, fibrinous glomerulitis and lymphocytosis of the lungs were noted. The author discussed differential diagnosis and the risk of infection of man.—H. BOYD.

VERMEIL, C. & MAURIN, J. (1953). Toxoplasmose expérimentale et chorio - méningite lymphocytaire chez la souris. [**Experimental toxoplasmosis and lymphocytic choriomeningitis in mice.**]—*Ann. Parasit. hum. comp.* **28,** 5-13. **1471**

A virus, isolated from *Toxoplasma* passage material, produced clinical symptoms resembling those of lymphocytic choriomeningitis when injected intracerebrally into mice. These symptoms had previously been masked by the toxoplasmosis. A serum was produced to neutralize the virus.—S. F. M. DAVIES.

MANWELL, R. D. & DROBECK, H. P. (1953). **The behavior of** *Toxoplasma* **with notes on its taxonomic status.**—*J. Parasit.* **39,** 577-584. [Authors' summary modified.] **1472**

A thorough study of *Toxoplasma* in peritoneal exudate and in physiological saline, using both bright and dark-field illumination, confirmed that it is motile, and revealed several different types of behaviour. There was no evidence of flagella or the usual accessory structures seen in flagellate protozoa, either in living or stained organisms. Behaviour was strikingly like that of *Sarcocystis* spores. This, with other evidence, indicated a close biological relationship of the two genera. The authors suggested that there is reason to question the general practice of including either with the protozoa.

See also absts. **1613** (anaplasmosis and trichomoniasis); **1661** (bovine trypanosomiasis); **1723** (report, Basutoland); **1724** (report, Somaliland Protectorate); **1725** (report, U.S.A.).

DISEASES CAUSED BY VIRUSES AND RICKETTSIA

GOMEZ, A. (1953). Nécessité d'éliminer la fièvre aphteuse du continent américain. [**Eradication of foot and mouth disease from the American continent.**]—*Bull. Off. int. Epiz.* **39,** 430-434. **1473**

G. outlined the progress made after some two years' work at the Venezuelan Foot and Mouth Disease Institute. He emphasized that co-operation on an international scale within the two American continents is essential for complete eradication of the disease and that complete state control of all measures is necessary.

—G. V. LAUGIER.

NIELSEN, F. W. (1953). Den sidste (?) mund- og klovesyge-epizooti. **[The 1952 epizootic of foot and mouth disease in Europe.]**—*Maanedsskr Dyrlaeg.* **63**, 77-90. **1474**

N. gave a short summary of F. & M. disease as it occurred in the various European countries during the 1952 outbreak and referred to some scientific findings which were made. He discussed policy at national and international levels for dealing with future outbreaks. He favours the energetic use of vaccination as the main defensive means: this involves an effective international warning system, the rapid production of type-specific vaccine by the existing laboratories, and suitable legislative compulsion on farmers.

—J. EDWARDS.

MICHELSEN, E. & THIESEN, K. S. (1953). Sur l'application de la méthode de fixation du complément pour la differérenciation des types au cours d'une épizootie aphteuse. **[The complement-fixation test in the typing of strains of foot and mouth disease virus.]** —*Bull. Off. int. Epiz.* **39**, 626-636. **1475**

Fourteen strains of F. & M. disease virus were submitted to comparative complement-fixation studies. It was found that accurate differentiation is not possible between all strains even when the degree of haemolysis was measured spectroscopically. It was, however, shown that this method is of great value in differentiating the main types, O, A and C, and that occasional resort must be made to animal inoculation in order to detect the appearance of variants.—G. V. LAUGIER.

PIERRE. (1953). Peut-on lutter efficacement contre la fièvre aphteuse par la vaccination? **[Is vaccination efficacious in control of foot and mouth disease?]**—*Maroc méd.* **32**, 454-461. **1476**

P. gave a brief résumé of the 1951 epizootic of F. & M. disease in France and of its economic effects. He outlined the slaughter policy and attendant sanitary police measures and showed that they were of value only in a limited number of countries. He reviewed vaccination in the light of experience gained in the 1951 epizootic. The difficulties of vaccination can be reduced provided that early identification of the type of virus present is made and that vaccine production on the required scale is possible under state control. He advocated education in the proper method of using vaccines. He gave an outline of complementary sanitary measures in (a) clean countries, (b) exposed or contaminated countries. He enumerated the factors essential for success in heavily infected areas. He emphasized the need for long-term organization.—G. V. LAUGIER.

MICHELSEN, E. (1953). Forsøg og erfaringer med en tetravalent vaccine mod mund- og klovesyge. **[Use of a tetravalent vaccine against foot and mouth disease.]**—*Nord. VetMed.* **5**, 98-102. [In Danish. English and German summaries.] **1477**

The results of experiments are described which indicate the inadvisability of using polyvalent vaccines.

During the last epizootic of F. & M. disease in Denmark, cattle on two farms were vaccinated with a tetravalent vaccine prepared from virus types A, A_5, O and C. In one farm it was found that the cattle had become immunized against A and O virus, but not against types A_5 and C, which were associated with the outbreak. On the second farm clinical cases of the disease appeared in cattle inoculated with the tetravalent vaccine.

An interference between types of virus evidently occurs when they are administered together to cattle.

A divalent A_5 and C vaccine gave much better immunizing effect than the tetravalent one. In future it will be necessary to select virus strains for immunizing potency before using them in the production of vaccine.

—J. EDWARDS.

SVIRIDOV, A. A. (1953). **[Immunization of cattle against foot and mouth disease with a live vaccine passaged through g. pigs.]**—*Veterinariya, Moscow.* **30**, No. 11. pp. 18-19. [In Russian.] **1478**

S. stated that he used a Type O field strain of F. & M. disease virus of proven virulence and immunogenic properties for passage through g. pigs and obtained a live vaccine in the form of a suspension of virulent g. pig blood in a certain medium which prolongs the viability of the virus and improves its immunogenic properties. He claimed that this new type of virus afforded a rapid and durable immunity against both spontaneous and artificial infection. Injection of this vaccine into the lips and gums caused local lesions in 17–30% of cattle, although without apparent loss of appetite or condition. S. used a modified method, injecting s/c behind the ear 0·5 ml. and 3 days later one ml. in the other side of the neck. Over 2 years some 8,000 cattle were vaccinated in localities where F. & M. disease was prevalent without a single case of failure among clinically healthy animals. In infected herds where all were vac-

cinated it afforded 76·5% protection in summer, but only 40% in winter when cattle were closely housed together. On 3 infected farms where only a single injection was given the outbreaks were not checked although the cases were of a mild form. Wherever a double injection was given, no healthy animals contracted infection. —F. A. ABBEY.

AHMET, Ö. (1953). Recherches expérimentales sur l'identification des types de virus aphteux d'origine turque. Méthode d'immunité croisée et méthode de déviation du complément. **[Typing strains of foot and mouth disease virus by cross immunity and complement-fixation tests.]**—*Bull. Off. int. Epiz.* **39,** 637-656. **1479**

A detailed account of the identification of four Turkish strains of F. & M. disease virus. Cross immunity tests were carried out on animals which had recovered naturally and on animals that had recovered after serum treatment. The technique described by Ubertini [*V.B.* **22,** 1305] was employed, the results being tabulated in detail. The strains were identified as A_5 C, O, and A_4, the identity of the fourth strain being confirmed by c.f. tests. It was concluded that the c.f. test is of value in view of its simpler and more economic technique.—G. V. LAUGIER.

REAGAN, R. L., DAY, W. C., MARLEY, R. T. & BRUECKNER, A. L. (1953). **Effect of pseudorabies virus (Aujeszky strain) in the large brown bat (*Eptesicus fuscus*).**—*Amer. J. vet. Res.* **14,** 331-332. **1480**

An account of the successful transmission of the virus of Aujeszky's disease, carried in infected rabbit brain after an unknown number of passages in rabbits, to the bat, *E. fuscus* by the intracerebral, intradermal, intraperitoneal, intramuscular, intracardial, intradermal, intraocular, intralingual, intratesticular, oral nasal and rectal routes. Symptoms developed within 72–96 hours. They differed from the "classical" picture in the apparent absence of pruritus. The identity of the virus recovered from the brain in the bats was established by g. pig inoculation tests. Control g. pigs previously immunized against Aujeszky's disease remained healthy.—F.E.W.

ADLAM, G. H. (1953). **Observations on rabies.** —*Canad. J. comp. Med.* **17,** 418-421. **1481**

Rabies was first observed in Alberta, near the border of the North-West Territories in 1952, since when affected wild animals have migrated over 400 miles southward. Foxes and coyotes are the most important carriers. Extremely rapid development of symptoms and their irreversibility made clinical diagnosis comparatively easy.—R. GWATKIN.

ALEXANDER, R. A. (1952). **Rabies in South Africa. (A review of the present position.)** —*J. S. Afr. vet. med. Ass.* **23,** 135-139 **1482**

The epidemiology of rabies in the countries from Southern Rhodesia southwards is obscure. The authors briefly reviewed the position without references. The following seem to be established beyond reasonable doubt:—(1) Members of the mongoose family ('meerkats') with symptoms of rabies failed to transmit the disease to dogs [number of dogs not stated]. (2) Rabies in dogs occurs in the Orange Free State, Western Transvaal and Northern Cape Province, in N. and S. Rhodesia, Bechuanaland and part of S.W. Africa. (3) Dogs affected in Rhodesia, Bechuanaland and S.W. Africa get the furious form; it seems to be implied that dogs in the Union get the dumb form (and do not therefore transmit the disease).

A virus adapted to chick embryo makes a safe and effective vaccine which will shortly be used in S. Africa to protect dogs. The Semple type of phenolized vaccine is not recommended. The egg-adapted rabies virus will, however, tend to produce protein shock in dogs that have had the egg-adapted distemper virus.—F. B. LEECH.

KODRNJA, E. (1953). Die Prophylaxe der Tollwut. **[Prevention of rabies by immunization.]**—*Proc. XVth Int. vet Congr. Stockholm.* 1953. **1,** Pt. 1. 265-269. [In German. English and French summaries.] **1483**

K. described the incidence and control of rabies in Yugoslavia from 1946 to 1951. During this period there were 6,044 cases of rabies in animals and 249 cases in human beings. Control measures consisted in the destruction of wolves, foxes, and stray dogs, and the mass vaccination of dogs.—R.M.

ZUNKER, M. (1953). Versuche zur Tollwutschutzimpfung von Hunden und ihre Bedeutung für die Seuchenbekämpfung. **[Immunization of dogs against rabies.]**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 260-264. [In German. French and English summaries.] **1484**

Z. examined the effectiveness in dogs of rabies vaccine prepared by the method described by Hempt [*V.B.* **11,** p. 27]. He found little or no immunity in dogs 5 months after vaccination, and suggested that success claimed for mass vaccination of dogs may have been due more

to the attendant control measures (registration, quarantine, destruction of stray dogs) than to the vaccine.—R.M.

ZLOTNIK, I. (1953). **A selective method for the staining of Negri bodies in histological brain sections.**—*Nature, Lond.* 172, 962. 1485

Very selective, durable, and constant staining of Negri bodies can be effected by the method described which is based on Lendrum and McFarlane's modifications of the picro-Mallory techniques for staining connective tissue. Negri bodies are stained purplish-red with blue granulations, cytoplasm of neurones bluish, nucleoli dark purple, and erythocytes yellow.—A. ACKROYD.

DONATIEN, A., POUL, J. & RAMPON, R. (1953). Variation de la virulence du virus rabique fixe pour le chien inoculé par la voie intracérébrale. [**Variation in virulence for the dog by intracerebral injection of fixed rabies virus.**]—*Arch. Inst. Pasteur. Algér.* 31, 102-105. 1486

Fixed virus, Tangier strain, was used in experiments to determine the protective levels of different vaccines. The intracerebral route was employed and simultaneous titration of the virus was carried out on an equal number of controls. Five titrations were carried out on 25 dogs. Despite the uniformity of technique and experimental conditions, considerable variations in the virulence of the virus were observed.

—G. V. LAUGIER.

I & II. KOPROWSKI, H. & BLACK, J. (1954). **Studies on chick-embryo-adapted rabies virus. IV. Immunization of guinea-pigs and description of a potency control test. V. Protection of animals with antiserum and living attenuated virus after exposure to street strain of rabies virus.**—*J. Immunol.* 72, 79-84 & 85-93. 1487

III. KOPROWSKI, H., BLACK, J. & NELSEN, D. J. (1954). **Studies on chick-embryo-adapted rabies virus. VI. Further changes in pathogenic properties following prolonged cultivation in the developing chick embryo.** — *Ibid.* 94-106. [Authors' summaries modified.] 1488

I. G. pigs injected with living egg-adapted Flury strain of rabies virus became resistant to challenge inoculation with street virus within 12 days after vaccination. This resistance was accompanied by the development of homologous neutralizing antibodies. Results of comparative immunization of dogs and g. pigs indicated that the latter species may be used successfully to control potency of canine vaccines. The authors gave details of the proposed potency control test.

II. Results of protective antirabic treatment of dogs and g. pigs indicated that homologous antiserum administered 24 hours after exposure to street virus exercised a definite preventive effect. Still better results were obtained when administration of antiserum was followed by injection of living Flury virus. The authors discussed these findings in relation to serological evidence of immunity.

III. After prolonged cultivation in the developing chick embryo the Flury strain of rabies virus lost its pathogenic properties for mice 14 days of age or older when injected intracerebrally. Unweaned mice still remained fully susceptible. Dogs and rabbits were fully resistant to intracerebral inoculation of the virus, whereas rhesus monkeys were found to be almost as susceptible as unweaned mice.

Results of titrations of the virus in hamsters and g. pigs indicated that the virus preparation was not homogeneous. The authors described experiments in which different segments of the viral population were separated and analysed. They discussed the existence of different forms of virus in different stages of adaptation.

BERGER, K. & PUNTIGAN, F. (1953). Untersuchungen über die Veränderungen des weissen Blutbildes und der Bluteiweisskörper sowie über die Antikörperbildung nach cutaner, subcutaner und intracutaner Einverleibung von Pockenschutzimpfstoff. [**Changes in the blood picture, leucocytes and antibody formation following cutaneous, subcutaneous and intradermal inoculation of vaccinia.**] — *Z. Hyg. InfektKr.* 138, 272-291. 1489

From total and differential w.b.c. counts, various blood protein precipitation tests and electrophoresis of serum proteins it was shown that subcutaneous vaccination had less effect on cattle than cutaneous, but that this advantage was outweighed by the lower degree of immunity produced by this method.

—R. B. HOLCOMBE.

DOWNIE, A. W., MCCARTHY, K., MACDONALD, A., MACCALLUM, F. O. & MACRAE, A. D. (1953). **Virus and virus antigen in the blood of smallpox patients. Their significance in early diagnosis and prognosis.**—*Lancet.* 265, 164-166. [Authors' summary slightly modified.] 1490

Blood from smallpox patients was examined for virus by inoculating 0·1 ml. amounts

on the chorio-allantois of chick embryos, and the blood serum was tested for variola-virus antigen by the complement-fixation method. The finding of more than a few infective doses of virus in 0·1 ml. of blood at any stage of illness, or the isolation of virus from the blood after the second day, indicated a bad prognosis. The authors' experience suggested that where antigen can be detected in the blood, the patient is likely to die. These two methods of examination provide a valuable means of confirming the clinical diagnosis in haemorrhagic smallpox, particularly in patients with no focal lesions.

GRANT, J. (1953). **Post-inoculation poliomyelitis.** — *Brit. med. J.* July 11th, 66-70 [Author's summary slightly modified.] **1491**

From a study of a number of cases of post-inoculation poliomyelitis personally encountered in Gateshead and district G. concluded that there was no doubt of the increased risk to a child of developing a paralytic attack of poliomyelitis as a result of intramuscular immunizing injections (*e.g.* combined diphtheria and whooping cough) at a time when poliomyelitis was prevalent.

A close look-out must now be maintained in every area for the appearance of poliomyelitis. Immediately the first confirmed case has been detected intramuscular immunization procedures should be halted for a short period so as to take stock of the situation.

Manufacturers of prophylactics should aim at the production of antigens which will be satisfactory in every way when given by subcutaneous injection.

COLLIER, W. A., WINCKEL, W. E. F. & BLOM, F. A. E. (1954). **Two cases of St. Louis encephalitis in Surinam.**—*Doc. med. geogr. trop.* **5,** 225-234. **1492**

An account of two cases in Surinam, in human beings, considered to be St. Louis encephalitis. The authors argued that the disease has probably occurred previously in the country. They used the complement-fixation test on 32 animals or birds, representing six species and serum from 2 unaus or two-toed sloths (*Choloepus didactylus*), one ai or three-toed sloth (*Bradypus tridactylus*), one racoon (*Procyon c. cancrivorus*), one agouti (*Dasyprocta* sp.) and one of 13 fowls yielded positive reactions.

FULTON, J. S. (1953). **Epidemic encephalitis of man and equines in Saskatchewan.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 295-299. [In English. French and German summaries.] **1493**

Since 1935 Western equine encephalitis has caused losses amongst horses in Saskatchewan, and has been responsible for encephalitis in human beings. The mode of transmission of the disease is not yet known. F. described the preparation of a vaccine, using virus cultured in fowl embryos and treated with formalin. Two doses of this vaccine given 10 days apart produced good immunity in susceptible animals.

—R.M.

KISSLING, R. E. (1953). **Host-vector relationships in Eastern equine encephalomyelitis.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 299-304. [In English. French and German summaries.] **1494**

K. described the experimental transmission of Eastern equine encephalitis from infected fowls and certain wild birds to horses by the mosquito *Aedes aegypti.* Mosquito transmission of the disease from horse to horse failed.

—R.M.

MÜLLER, L. F. & SCHULZE, J. (1953). Liquoruntersuchungen bei Pferden mit Bornascher Krankheit. **[Examination of the cerebrospinal fluid in horses with Borna disease.]**—*Berl. Münch. tierärztl. Wschr.* **66,** 117-119. [English summary.] **1495**

An examination of the c.s.f. of horses with Borna disease revealed a lymphocytosis in 24 of 28 animals. There was an increase in globulin, whilst the sugar content remained at normal levels, in the majority of animals.

—E. J. L. SOULSBY.

NAKAMURA, J. & MIYAMOTO, T. (1953). **Avianization of lapinized rinderpest virus.**—*Amer. J. vet. Res.* **14,** 307-317. **1496**

The authors passaged lapinized rinderpest virus serially through 330 chick embryos using both alternate and straight passages in 5 different stages, during which it acquired a distinct increase in infectivity for the embryos, direct passage being possible after the second stage (*i.e.* after the 51st and 34th passages respectively). Changes in the spleen of embryos developed after the third stage, (*i.e.* after 60 and 34 passages respectively). Virus from the fifth stage was almost equally infective for both species, having become progressively attenuated for rabbits during the first four stages. It still caused a thermal reaction and necrotic lesions in the Peyer's patches, though less pronounced and less constant than with the original strain of lapinized virus.

Susceptible Japanese and Holstein-Friesian calves inoculated with virus from the 169th–188th passage (fifth stage) had only a slight

to moderate thermal reaction, were resistant to challenge with the original lapinized virus, but not to the bovine virus.—F.E.W.

BAGDONAS, V. & OLSON, C., JR. (1953). **Observations on the epizoötiology of cutaneous papillomatosis (warts) of cattle.**—*J. Amer. vet. med. Ass.* **122**, 393-397. **1497**

An account is given of an outbreak of papillomatosis in 82 of an experimental herd of 110 young Hereford cattle, which lasted two and a half years. All except 3 cases occurred in two episodes—in the first six and a half and the last three and a half months of the period. The animals in the second episode included 32 that had been previously affected. Contact with affected animals, either directly or indirectly through a wire fence, seemed to be the main cause of spread of the condition. The favoured sites of the first appearance of warts were the neck, chin, shoulder and dewlap, although in several cases infection seemed to begin on several parts of the body at once. In the circumstances described, there was ample opportunity for minor scratch wounds around the chin, neck and head from hay racks, feed hoppers and wire fences. There was evidence that the warts appeared after three and a half to four months of contact with affected animals. They persisted for from one to five and a half months (in over half the animals for two months or less).—E. COTCHIN.

CHODKOWSKI, A. & ŻEBROWSKI, L. (1952). Zakaźne zapalenie pyska i górnych dróg oddechowych u owiec na tle wirusowym. **[Contagious pustular dermatitis in sheep.]** —*Méd. vét., Varsovie.* **8**, 56-59. **1498**

The authors believe that a filtrable virus is responsible for the condition in sheep characterized by inflammation of the mucosae of the mouth and respiratory tract (contagious pustular dermatitis). The virus cannot, however, be considered exclusively dermotropic. Cases described were confined to the mucosa of the base of the tongue. Inoculation of this virus by scarification of the skin did not produce any changes at the site of inoculation. Animals that recovered developed an immunity, but immunity could not be produced artificially.

As a rule the condition is not fatal, but secondary invaders are often responsible for death. Haemagglutination and cultural tests with chick embryos give negative results.

—J. R. MITCHELL.

ABDUSSALAM, M. (1953). **Contagious pustular dermatitis of sheep.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1**, Pt. 1. 387-393. [In English. French and German summaries.] **1499**

The author studied the morphology of the virus of contagious pustular dermatitis, obtained by the differential centrifugation of skin scrapings from infected sheep, by light and electron microscopy, and described the histology of skin obtained by biopsy from infected lambs. He infected rabbits by scarification or i/d inoculation, and described the application of the agglutination, precipitation, complement-fixation and haemagglutination tests to contagious pustular dermatitis.—R.M.

FULTON, J. S., BURTON, A. N. & MILLAR, J. L. (1953). **Virus pneumonia in swine.**—*J. Amer. vet. med. Ass.* **123**, 221-226. **1500**

The authors described the lesions in affected lungs; bacteria-free filtrates readily reproduced the disease in healthy pigs. Attempted transmission to g. pigs, mice and chick embryos failed. The virus was recovered from 2 pigs, 40 days after they had contracted the disease.

—D. LUKE.

BETTS, A. O. & BEVERIDGE, W. I. B. (1953). **Virus pneumonia of pigs. The effect of the disease upon growth and efficiency of food utilisation.**—*Vet. Rec.* **65**, 515-520. **1501**

The authors studied the effects of virus pneumonia of pigs upon growth rate and thriftiness in two experiments (1) in summer and (2) in winter, each comprising 16 pigs, 8 weeks old —half being uninoculated controls under identical conditions of housing, feeding and management, while those in each experimental group were each inoculated intratracheally with 10 infective doses of virus. In the summer experiment the average growth rate of the controls from weaning to 200 lb. live wt. was 1·29 lb. per day at a conversion rate of 3·39 lb. of food per lb. live wt. gain, as compared with 1·11 lb. gain per day at a conversion rate of 4·25 for the infected pigs. Under winter conditions the av. growth rate of the controls was 1·19 lb. per day and the conversion rate 3·85, as compared with an av. gain of 0·92 lb. per day at a conversion rate of 4·90 in the infected group.

The inoculated pigs did not appear to be clinically ill, although their growth rate was depressed. Field observations suggested that the effects of the natural disease are frequently more severe than those indicated by these experiments. The authors discussed the economic importance of the condition and its effects upon nutritional and other studies.—A.S.

LARIN, N. M. (1954). **Canine distemper virus complex.**—*Nature, Lond.* **173**, 174-175. **1502**

A study of 23 strains of virus isolated from cases of clinical distemper in various parts of Britain showed that they could be divided into three strains, A, B and C, as judged by their behaviour in ferrets. Ferrets which had recovered after inoculation with strains B or C had no immunity to strain A. On the other hand, the simultaneous inoculation of A and C strains produced the disease characteristic of A strain only.

Infection with A, B and C strains may occur at the same time. None of the strains produced hardening of the pads. L. concluded that changes have been occurring in the strains of distemper virus and the differences are now sufficiently great for the plurality of the virus to be assumed; this necessitates a revision of the components of immunizing materials.

—J. A. NICHOLSON.

BINDRICH, H. (1953). Beitrag zur Hundestaupeencephalitis. **[Distemper encephalitis in dogs.]**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1**, Pt. 1. 383-387. [In German. English and French summaries.] **1503**

Employing 2,000 puppies, 10–20 weeks old, B. passaged distemper virus by intrathecal or intracerebral inoculation of c.s.f. collected during encephalitis. Following inoculation there was in each case septicaemia which corresponded to virus proliferation in the parenchymatous organs, followed by encephalitis. Infective c.s.f. could be neutralized by distemper antiserum. B. concluded that the distemper virus used was organotropic and possessed no neurotropic properties.—R.M.

MARTIN, L. A. & GORET, P. (1953). Sur quelques caractères reliant les virus du complexe "maladie des chiens" et certains virus hépatoneurotropes de l'homme. **[Suggested relationship between canine distemper virus and certain hepatoneurotropic viruses of man.]**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1**, Pt. 1. 379-382. [In French. English and German summaries.] **1504**

The authors were unable to find any relationship between distemper and fox encephalitis viruses on the one hand and poliomyelitis on the other, in their pathogenicity for apes, dogs, ferrets, rabbits, mice, and gerbils (*Meriones shawei*), or in cross-immunity tests.—R.M.

ADAMS, J. M. (1953). **Comparative study of canine distemper and a respiratory disease of man.**—*Pediatrics, Springfield.* **11**, 15-27. **1505**

Three ferrets developed distemper 14–17 days after inoculation with the virus of the disease, while in 5 others, injected either with hyperimmune serum or with human γ-globulin, the incubation period was longer.

The author found that sera from human patients in the acute and convalescent phases of a respiratory infection contained antibody against a strain of distemper virus adapted to chick embryos. He inferred that distemper virus may be a cause of respiratory infection in man.—A.S.

LASFARGUES, E. (1953). Essais de culture du virus de la maladie de Carré sur membranes chorio-allantoïdes et sur tissus embryonnaires de poulet. **[Cultivation of the distemper virus on the chorio-allantois and on tissues of the chick embryo.]**—*Ann. Inst. Pasteur.* **84**, 703-710. **1506**

On the chorio-allantoic membrane the virus was maintained for 34 passages. Certain lesions were seen up to the eighth passage and beyond. After the 34th virus was absent. The nature of the lesions is under investigation.

The virus was maintained in liquid medium containing embryonic chick tissues for 6 weeks.

—D. LUKE.

LARIN, N. M. (1953). **Some aspects of canine virus hepatitis (Rubarth's disease).**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1**, Pt. 1. 375-379. [In English. French and German summaries.] **1507**

An account of work on canine virus hepatitis carried out at the Canine Research Station of the Animal Health Trust, England. [See *V.B.* **22**, 2823, 2824, & 2826.]—R.M.

WEGMANN, T., USTERI, C. & HEDINGER, C. (1951). Die sogenannte Katzenkratzkrankheit, eine benigne Viruslymphadenitis. **[Benign virus lymphadenitis in man (cat scratch fever).]**—*Schweiz. med. Wschr.* **81**, 853-858. **1508**

The authors stated that cat scratch fever is probably caused by a virus closely related to the causal agent of lymphogranuloma inguinale. They suggested that the name cat scratch fever should be substituted by benign virus lymphadenitis. Case histories of 10 human patients and 5 photomicrographs of affected lymph nodes are also given.—E.G.

SANCHIS-BAYARRI, V., RESENDE, N. & GARCIA-MARTINEZ, A. (1953). Essais de vaccination du lapin contre le virus du myxome infectieux au moyen d'un anavaccin. **[Attempts to im-**

munize against myxomatosis using a formolized vaccine.]—*Bull. Acad. vét. Fr.* **26,** 361-364. Discussion pp. 364-365. **1509**

The authors found that 0·4% and 1% formolized myxomatosis vaccines were innocuous to rabbits. Virus so treated and diluted 1 : 10 and injected at a dosage of 1 to 8 ml. was harmless, but failed to protect against the m.l.d. of virus. Work on dogs showed the virus to be harmless to that species, and serum from these animals had no protective value for rabbits.—G. V. LAUGIER.

SCHÄFER, W., SCHRAMM, G. & TRAUB, E. (1949.) Untersuchungen über das Virus der atypischen Geflügelpest. **[Research on the virus of Newcastle disease.]**—*Z. Naturforschg.* **4,** 157-167. **1510**

The virus of Newcastle disease was recovered from the amniotic and allantoic fluids of incubated hens' eggs by precipitation with ammonium sulphate at pH 5·2, extraction of the precipitate with an acetate buffer solution to remove accompanying proteins, and the centrifugation of the residual sediment dissolved in phosphate buffer solution. The virus was used in experiments to determine the concentrations required to effect haemagglutination, and to produce 50% mortality in injected chick embryos.

Observations with the electron microscope revealed particles of rounded form in aqueous solution, while in saline solutions thread-like shapes were adopted. The sedimentation and diffusion constants of the virus in aqueous and saline solution were measured in order to confirm this change of shape, but since no such change was demonstrable by this method the microscopical observations were taken to be an artificial effect.—A.S.

YATES, V. J., WASSERMAN, B. & FRY, D. E. (1952). **Studies using the skin modified Newcastle disease virus.**—*Proc. 24th Ann. Meet. N.E. Conf. lab. Wkrs Pullorum Dis. Contr.* June 19 and 20, (1952). pp. 6. (No pagination). [Mimeographed.] **1511**

The authors studied the value of a method of testing chickens for susceptibility to Newcastle disease, using as test virus a strain of N.D.V. modified by continuous skin passage in chickens so that it had low infectivity for the respiratory tract but produced extensive thickening of the skin when inoculated i/d into susceptible birds. It had a high degree of accuracy. —F.E.W.

PUTEANUS, I. (1953). Über die Bedeutung des Hämagglutinations- (H.A.) und des Hämagglutinationshemmungstestes (H.A.H.) zur Feststellung der atypischen Geflügelpest. **[Haemagglutination and haemagglutination inhibition in Newcastle disease.]**—*Tierärztl. Umsch.* **8,** 183-187. **1512**

The incidence of outbreaks of atypical Newcastle disease appears to be increasing. P. discussed the difficulty of diagnosis. He concluded that with fresh atypical outbreaks only virus cultivation will provide a certain diagnosis. With outbreaks of longer duration, however, haemagglutination-inhibition tests may be used for diagnosis.—J. A. NICHOLSON.

SCHLEGEL-OPRECHT, E. & FEY, H. (1953). Diagnose der atypischen Geflügelpest (Newcastle disease) mit Hilfe des Hirst-Tests. **[The haemagglutination-inhibition test in the diagnosis of Newcastle disease.]**—*Schweiz. Arch. Tierheilk.* **95,** 663-672. [English, French and Italian summaries.] **1513**

In 20 outbreaks of Newcastle disease the ordinary haemagglutination - inhibition (H.I.) test was employed for routine diagnosis and found more satisfactory than P.M. examination. In Switzerland the use of organ extracts for this test is of no advantage.—W. J. SILLER.

ZUYDAM, D. M. (1953). **Vaccination against Newcastle disease.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1,** Pt. 1. 252-256. [In English. French and German summaries.] **1514**

Z. examined 4 inactivated and 4 live Newcastle disease vaccines in order to determine which was most suitable for use in the Netherlands should the stamping-out method of control fail. The live vaccine described by Beaudette [*V.B.* **21,** 91] was found to be the most suitable. Fowls excreted Newcastle disease virus in the faeces for up to 19 days after the inoculation of this vaccine, but normal unvaccinated fowls placed in contact for 42 days with fowls vaccinated 5–8 weeks previously did not develop Newcastle disease, and remained susceptible.—R.M.

VAN WAVEREN, G. M. & ZUIJDAM, D. M. (1953). Vaccinatie tegen pseudovogelpest. **[Vaccination against Newcastle disease.]**—*Tijdschr. Diergeneesk.* **78,** 577-589. [English, French and German summaries.] **1515**

Under laboratory and field conditions, the immunity against Newcastle disease provided by adsorbate vaccine lasted only 3 months; by crystal violet vaccine, 6–7 weeks; by the Beaudette living vaccine inoculated into the wing web, at least one year; by the Komarov living vaccine, only 12 weeks; by the Hitchner B_1 living vaccine following intranasal instillation, 4

months. Although vaccination with Mukteswar vaccine gave an immunity of at least 8 months, this method was not recommended as severe vaccination symptoms occurred, with 16% mortality and a marked decrease in egg production.
—C. A. VAN DORSSEN.

WHITE, F. H., HANSON, L. E. & ALBERTS, J. O. (1953). **Studies on Newcastle disease. X. Vaccination studies with Newcastle disease vaccine (intranasal type) in parentally immune and susceptible chicks.**—*Poult. Sci.* 32, 103-106. 1516

Chicks from immunized and from susceptible hens, when vaccinated by the intranasal or conjunctival routes were equally resistant to challenge with Newcastle disease virus.
—F. T. W. JORDAN.

MITCHELL, C. A. & WALKER, R. V. L. (1953). **Newcastle disease vaccine employing an adjuvant.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. 1, Pt. 1. 256-259. [In English. French and German summaries.] 1517

An adjuvant consisting of "falba" (a lanolin-like substance) with mineral oil, was added to formalin-treated Newcastle disease virus. The authors inoculated intramuscularly several thousand fowls with this vaccine: 902 out of 995 vaccinated fowls were immune to the intranasal instillation of virulent virus 6 months after vaccination. Eighty-three out of 172 chicks, 3–5 days old, from vaccinated hens survived exposure to virulent virus by intranasal instillation or intramuscular injection.—R.M.

KOHN, A. (1953). ***In vitro* inactivation of Newcastle disease virus by penicillin preparations.** —*Proc. Soc. exp. Biol., N.Y.* 82, 612-616. [Author's summary modified.] 1518

When Newcastle disease virus was mixed with penicillin, inactivation of the virus took place, the extent of inactivation being dependent both on the concentration of penicillin and on the time of incubation of the mixture. Incubation of the virus *in vitro* for 3 hours with more than 5000 units per ml. of crystalline penicillin G resulted in at least a 100-fold reduction of the infectivity of the virus, and up to 2 million ELD_{50} (dose lethal for 50% of embryos) of the virus could be completely inactivated.

The virus-inactivating property of penicillin could be destroyed by acid or alkali treatment but was not affected by heating. Penicillinase also inactivated the antiviral properties of fresh and heated penicillin. However, this effect was apparently not due to enzymic action. Virus previously inactivated by fresh or heated penicillin could not be restored to its original potency when the penicillin was neutralized by penicillinase. The injection of 50,000 units of penicillin mixed with the virus protected chick embryos and 10-day-old chicks against as many as 400 ELD_{50} of the virus. At this concentration, however, penicillin had no prophylactic or therapeutic activity.

CHUTE, H. L. (1952). **Infectious bronchitis studies.**—*Proc. 24th Ann. Meet. N.E. Conf. lab. Wkrs Pullorum Dis. Contr.* June 19 and 20, (1952). pp. 3. (No pagination). [Mimeographed.] 1519

Four hundred chickens, three and a half to 17 weeks old and 108,604 chickens in 70 field flocks were inoculated with an egg-embryo seventh passage infectious bronchitis virus by spraying, swabbing or a combination of both methods. Mild symptoms developed in 25%, average symptoms in 43% and severe symptoms in 24%, while 8% were free from symptoms. The mortality was 0·007%. Representative groups of chickens were resistant to challenge with virulent virus for at least 50 weeks after inoculation.—F.E.W.

BUDDINGH, G. J. (1953). **The pathological effects of viruses on the chick embryo.**—*Ann. N.Y. Acad. Sci.* 55, Art. 2. pp. 248-253. 1520

B. discussed the lesions produced in the chick embryo by a number of viruses. He suggested that a systematic and comparative histopathological study of the effect of viruses on embryos at various stages of development should reveal not only pathognomonic lesions but important data concerning the cell-parasite relationship, which can be augmented by the biochemist and biophysicist.—F. T. W. JORDAN.

COTTRAL, G. E. (1953). **Endogenous viruses in the egg.**—*Ann. N.Y. Acad. Sci.* 55, Art. 2. pp. 221-235. 1521

Avian lymphomatosis, avian encephalomyelitis, Newcastle disease, infectious sinusitis and psittacosis, as well as avian type TB, and salmonella infection can be transmitted *via* the egg. It is of importance therefore that research workers should be acquainted with this, and that in live virus vaccine production endogenous viral agents may be carried as unknown contaminants which might set up disease. Care should be practised in selecting the source of eggs for the production of live virus vaccines, in the storage of eggs, and in incubator hygiene.
—F. T. W. JORDAN.

Cox, H. R. (1953). **Growth of viruses and rickettsiae in the developing chick embryo.**—*Ann. N.Y. Acad. Sci.* **55**, Art. 2. pp. 236-247. **1522**

C. briefly reviewed some of the early work. He discussed the significance of various routes of inoculation and factors influencing the growth of viruses and rickettsia. He listed the viruses and rickettsia which will grow in various parts of the living embryo, and in the killed embryos and discussed the advantage of the sites. Vaccines produced in the embryo are tabulated.

—F. T. W. Jordan.

Shope, R. E. (1953). **An antiviral substance from *Penicillium funiculosum*. I. Effect upon infection in mice with swine influenza virus and Columbia SK encephalomyelitis virus. II. Effect of helenine upon infection in mice with Semliki Forest virus. III. General properties and characteristics of helenine.**—*J. exp. Med.* **97**, 601-625, 627-638 & 639-650. **1523**

I. A culture of *P. funiculosum* obtained from Guam was found to produce a substance which had curative properties in swine influenza virus infection in mice. Cultures produced variable amounts of the substance and eventually ceased to do so. Another substance, however, produced by the same organism and subjected to antiviral testing, proved to have activity against encephalomyelitis virus infection in mice. The name " helenine " has been given to this second substance.

II. In further studies on helenine, the Semliki Forest virus was selected as suitable for study and it also proved to be susceptible to helenine in mice.

III. An account of a study of the biological, physical and chemical properties of helenine.—J. Edwards.

Mathews, J. & Hofstad, M. S. (1953). **The inactivation of certain animal viruses by ethylene oxide (carboxide).**—*Cornell Vet.* **43**, 452-461. **1524**

In search for an agent for sterilizing laboratory apparatus of live virus, attention was given to ethylene oxide, which was known to be a potent bactericide. Carboxide (ethylene oxide 10% in carbon dioxide) was used for convenience in supply and was pumped under pressure into a converted autoclave containing viruses.

The following viruses in lyophilized state were inactivated by exposure to carboxide for 16 hours:—swine fever, Rous sarcoma, vesicular stomatitis, Newcastle disease, feline pneumonitis and mouse pneumonitis. These viruses and others which survived in lyophilized form were inactivated in the wet state, the latter being:—rabies, mouse encephalomyelitis, laryngotracheitis, fowl pox, vaccinia, swine pox, infectious bronchitis, swine influenza and the agent of chronic respiratory disease of fowls. A period of four hours was found to be sufficient for the viruses of fowl pox, vaccinia, swine pox, infectious bronchitis, swine influenza and Newcastle disease, when they were exposed as dried on to cloth.

Carbon dioxide alone had no inactivating power.—J. Edwards.

Stokes, J. (1953). **" Q " fever in South Australia : II. Surveys of human and bovine sera.**—*Med. J. Aust.* Nov. 21st. 778-780. [Abst. from author's summary.] **1525**

Forty-two natural infections with *R. burneti* have been recorded in South Australia since the beginning of the original outbreak in the summer of 1947-48. The sera giving positive results were from abattoir workers with the exception of four—two workers in a factory processing offal, the canteen proprietor at the abattoirs, and a herd tester. All patients tested 12–16 months after their illness had complement-fixing antibodies varying in titre between 1:8 and 1:2048. One still had a titre of 1:512 29 months after infection.

During the course of the work there were 4 clinical and 2 subclinical laboratory infections. The clinical cases all occurred when the rickettsia were being extensively cultivated in eggs.

Of 793 serum samples from cattle from northern areas and 641 from dairy cattle from central and southern districts tested, all gave negative results.

Winn, J. F., Lennette, E. H., Welsh, H. H. & Abinanti, F. R. (1953). **Q fever studies. XVII. Presence of *Coxiella burnetti* in the feces of naturally infected sheep.**—*Amer. J. Hyg.* **58**, 183-187. [Authors' summary modified.] **1526**

Rickettsia burneti was recovered from the faeces of two naturally-infected sheep. The organisms were not demonstrable in the faeces before parturition, but appeared at parturition and continued to be present for at least 7 days afterwards. The authors discussed whether the presence of rickettsia in the faeces is a phenomenon associated with parturition, rather than a contamination from a placenta in which they are present in great concentration.

Pérez Gallardo, F., Clavero, G. & Valle, E. (1952). Epidemiología de la fiebre " Q ". (Nota sobre la infección experimental del

perro por la " *C. burneti* ".) [**Epidemiology of Q fever. (A note on the experimental infection of the dog by *Rickettsia burneti*.)**]—*Rev. Sanid. Hig. publ. Madr.* **26**, 641-644. **1527**

The authors carried out experiments to determine the role of the dog in the ecological cycle of Q fever. Six dogs injected by various routes (2 intraperitoneal, 2 subcutaneous and 2 intracardial) with rickettsia from infected eggs, became ill with fever, diarrhoea, dry cough and general debility leading to death in two cases. Complement-fixation tests one month after the inoculations confirmed the presence of the disease.

The dog tick, *Rhipicephalus sanguineus* is a known reservoir of *R. burneti*, and so it seems that the dog must be taken into consideration in further studies of the ecology of Q fever.

—I. W. Jennings.

See also absts. **1613** (" Three-day sickness " and rabies in Israel); **1623-1624** and **1626-1629** (chronic respiratory disease); **1630** (equine encephalomyelitis in pheasants); **1723** (report, Basutoland); **1724** (report, Somaliland Protectorate); **1725** (report, U.S.A.); **1726** (book, virus multiplication).

IMMUNITY

Wormall, A. (1952). **Isotopes in the study of immunology.**—*Brit. med. Bull.* **8**, 223-229. **1528**

This is a comprehensive review of the present knowledge regarding isotopes in immunology.

Using these techniques the components of an immunological complex can readily be detected and determined. Molecular structure of proteins is relatively unchanged, though antigenic specificity may suffer, following treatment with isotopes. Labelling may be chemical or biological, the latter being the most suitable, but yields are low and suitable isotopes are at present restricted. W. discussed the chief isotopes: radio-iodine (I^{131}) which causes little destruction of the serum γ-globulins and is useful in antibody studies, S^{35}-labelled mustard gas which becomes firmly fixed to the protein, P^{32} which is useful in biological labelling and the stable isotopes such as N^{15} and deuterium which have been used to study passive immunization. He outlined the value of isotopes in the particular study of antigen-antibody reactions, the fate of injected antigens and the site of antibody production. He discussed also localization of injected antibodies against specific tissues and the isotope labelling of bacteria and viruses.—E. J. L. Soulsby.

Ambrose, E. J. & Easty, G. C. (1953). **Detection of antigen-antibody interaction by an interferometric method.** [Correspondence.]—*Nature, Lond.* **172**, 811. **1529**

The authors described a microscopic interferometric method of detecting and quantitatively estimating antigen-antibody interactions. An inflexion of the usual interference fringes formed in a gel placed between two optically flat silvered surfaces of two glass plates which are protected by narrow wedges of glass plate and illuminated with parallel monochromatic light, occurs when the refractive index increases on account of an antigen-antibody reaction in the gel.—A. Ackroyd.

I. Boulanger, P., Plummer, P. J. G., Annau, E. & Rice, C. E. (1953). **Parallel studies of complement and blood coagulation. X. The effect of a high cholesterol diet.**—*Canad. J. comp. Med.* **17**, 403-405. **1530**

II. Boulanger, P., Plummer, P. J. G. & Rice, C. E. (1953). **Parallel studies of complement and blood coagulation. XI. The effect of cortisone injection and partial adrenalectomy.**—*Ibid.* 406-412. **1531**

I. A high cholesterol diet caused enlargement and fatty infiltration of the liver in g. pigs and increase of cholesterol in the serum. The complement titres were not lower than those of the controls.

II. Repeated injections of cortisone had no effect on g. pigs with normal or low complement titres and the coagulability of the plasma was not significantly altered. Partial adrenalectomy in g. pigs and total adrenalectomy in white rats had no effect on the haemolytic properties of the complement.—R. Gwatkin.

Germuth, F. G., Jr., (1953). **A comparative histologic and immunologic study in rabbits of induced hypersensitivity of the serum sickness type.**—*J. exp. Med.* **97**, 257-282. **1532**

Observations, in rabbits, on the relationship between the tissue changes of experimental hypersensitivity and the immunological response produced by a single i/v injection of 0·5 g. of crystallized bovine serum albumin dissolved in saline, showed that the cardiac, vascular, and renal changes and granulomatous lesions consisting of epithelioid and foreign body giant cells in the follicles of the spleen and lymph nodes develop after the third or immune phase of antigen elimination has begun, are present in great-

est severity and in highest incidence about the end of the immune phase, and regress, ultimately completely, when free antibody has appeared in the circulation.—A. ACKROYD.

SAMAILLE, J., ROPARTZ, C. & EYQUEM, A. (1953). Anémie hémolytique expérimentale par hétéro-immunsérums chez le chien. Mise en évidence, à l'aide de la réaction directe de Coombs, de la fixation des protéines de l'animal sur ses propres globules rouges. **[Experimental production of haemolytic anaemia in dogs by use of heterologous immune serum.]**—*Ann. Inst. Pasteur.* **85**, 48-55. **1533**

Haemolytic anaemia was produced in young dogs by the i/v injection of a single dose of anti-canine erythrocyte serum from rabbits.

Blood transfusions of compatible blood minimized anaemia and prevented parenchymal lesions. Immunization of dogs against rabbit serum protected them against the heterologous antiserum.—E. J. L. SOULSBY.

KALLÓS, P. [Edited by.] (1952). **Progress in allergy. Vol. III.** pp. 572. Basle & New York: S Krager. [In English.] Swiss Fr. 58.65. **1534**

This third volume of " Progress in Allergy " contains eleven sections dealing with a wide range of allergy subjects contributed by well known authorities in their own sphere.

Progress is naturally slow in the elucidation of the mechanism of allergy; new and original work is not plentiful, and a large part of the contents consists of well-known and oft repeated views on this subject.

Peshkin in an excellent section on allergy of children believes that the facile adherence to the theory of antigen and antibody has been a drawback to the elucidation of the mechanism of allergy.

Antigens once common are now rare and are replaced by many new substances, for example, D.D.T., aerosol insecticides, flax-seed and its products, which are now found to be common sensitizing agents.

Unger gives a useful summary of the different unit values used in assaying testing fluids.

Urgen in his section on bronchial asthma found that A.C.T.H. gives good results in the severe forms of asthma, but treatment must be continued for a long period. Rowe discusses the controversial subject of food allergy as opposed to inhalant allergy as the cause of bronchial asthma. He also stresses the feature of temperature in food allergy [perhaps interesting from the point of view of fog fever in cattle].

Probably the most interesting section is by Harley on the infectious factor in asthma and rhinitis. He uses the term ' bacterial sensitization ' (page 276) for all those types of allergic disease in which the allergen originates from an infective process at the site of manifestation, for example, respiratory tract infection, as opposed to the specific classical sensitization of the tuberculin reaction.

The section by Harkavy gives an excellent review of the pros and cons of the histamine theory.

Three sections are devoted to the chemistry and pharmacological actions of the ergot alkaloids. The connexion here with allergy is that many of the allergic manifestations respond to therapy with the ergot alkaloids.

Finally, Brown gives a section on drug allergy. He stresses the importance of the sulphonamides and dyes in relation to photosensitization. His main point is that drug allergy is a true allergy and may be produced with subpharmacological doses and moreover is markedly specific.

From the purely veterinary point of view, the interest will be found mainly in the excellent dissertations on the basic principles of allergy. Students of this subject will, however, find it an interesting and well written volume.

—W. R. KERR.

See also absts. **1376** (TB. vaccine); **1378** (B.C.G.); **1381-1382** (swine erysipelas); **1395** and **1397** (pullorum disease); **1403-1404** (brucellosis); **1418** (tetanus); **1433** (avianized bovine pleuro-pneumonia vaccine); **1438** (cross-agglutination between *Brucella* and *Vibrio*); **1439** (Strain 19 and B.C.G.); **1469** (anaplasmosis); **1475-1479** (F. & M. disease); **1483-1488** (rabies); **1489** (vaccinia); **1490** (smallpox); **1496** (rinderpest); **1509** (myxomatosis); **1510-1518** and **1631-1632** (Newcastle disease); **1562** (filariasis).

PARASITES IN RELATION TO DISEASE [GENERAL]

DIAS, V. S. (1950). Nota prévia sôbre os parasitas dos animais domesticos de Angola. **[Note on parasites of domestic animals in Angola.]**—*Pecuária.* **2**, 17-45. **1535**

This is a list of the protozoan and metazoan parasites of domestic animals and birds in Angola, with a short note on each, together with a short bibliography.—I. W. JENNINGS.

PARASITES IN RELATION TO DISEASE [ARTHROPODS]

EICHLER, W. & PIECHOCKI, R. (1952). Untersuchungen zur Epidemiologie der Aussenparasiten. VI. Massenauftreten von Bussard-Federlingen. **[Epidemiology of feather parasites of birds.]**—*Arch. exp. VetMed.* **6,** 249-261. **1536**

An account of two cases of massive infestation with feather lice in the common buzzard in captivity. This was associated with severe malnutrition and death. The authors discussed the species of lice which infest captive birds.

—E. J. L. SOULSBY.

DAVIS, C. L. & LEADBETTER, W. A. (1952). **Fatal brain hemorrhage in a bull caused by the cattle grub (*Hypoderma bovis*).**—*N. Amer. Vet.* **33,** 703-705. **1537**

Larvae of *H. bovis* caused a fatal haemorrhage in the brain of a two-year-old Hereford bull.

TER BORG, H. (1951). Vier jaren georganiseerde runderhorzelbestrijding in de provincie Groningen. **[Control of *Hypoderma bovis* in the province of Groningen.]**—*Tijdschr. Diergeneesk.* **76,** 926-937. **1538**

Transportation and pasturing of cattle which harbour warble fly larvae are prohibited by a Netherlands byelaw of 1942. From 1948 onwards all the cattle (135,000) in the Province of Groningen had been treated with lonchocarpus powder suspension (5% rotenone), three times annually. In 1951 only 8% were infested as compared with 38% in 1948.

—C. A. VAN DORSSEN.

ROGOFF, W. M. & MOXON, A. L. (1952). **Cable type back rubbers for horn fly control on cattle.**—*J. econ. Ent.* **45,** 329-334. **1539**

Siphona (Lyperosia) irritans can be controlled by providing cattle with back scratchers made by stretching a wire cable between two posts, and wrapping it with sacking which is soaked at fortnightly intervals in 5% D.D.T. solution.—BERYL A. KAY.

BUXTON, P. A. (1952). **Symposium on insecticides. I. The place of insecticides in tropical medicine : an introduction.**—*Trans. R. Soc. trop. Med. Hyg.* **46,** 216-226. **1540**

MACDONALD, G. (1952). **Symposium on insecticides. II. The objectives of residual insecticide campaigns.**—*Ibid.* 227-235. **1541**

HADAWAY, A. B. & BARLOW, F. (1952). **Symposium on insecticides. III. Some physical factors affecting the efficiency of insecticides.**—*Ibid.* 236-244. **1542**

BUSVINE, J. R. (1952). **Symposium on insecticides. IV. The newer insecticides in relation to pests of medical importance.**—*Ibid.* 245-254. **1543**

HARRISON, C. M. (1952). **Symposium on insecticides. V. The resistance of insects to insecticides.**—*Ibid.* 255-263. **1544**

BARNES, J. M. (1952). **Symposium on insecticides. VI. The action of some synthetic insecticides on mammals.**—*Ibid.* 264-270. **1545**

MUIRHEAD-THOMSON, R. C., GORDON, R. M. & DAVEY, T. H. (1952). **Symposium on insecticides. VII. A plea for the standardization of experimental work on residual insecticides.**—*Ibid.* 271-274. **1546**

I - VII. The symposium summarized recent research into the use of organic insecticides in the medical field. Buxton opened the symposium with a general review, together with a useful bibliography of the more important work on the subject since 1946. J. R. Busvine pointed out that D.D.D. (dimethylamine dimethyl-dithiocarbamate), methoxychlor, piperonyl butoxide and aldrin were potentially useful as their toxicity to mammals was lower than that of D.D.T., but that those insecticides which were poisonous to mammals, such as E605, might also be valuable in the destruction of such facultative parasites as the bedbug. J. M. Barnes noted the value of phenobarbiturates in the suppression of convulsions caused by chlorinated insecticides while A. B. Hadaway and F. Barlow focused interest on the importance of particle size in insecticide formulations and C. Mary Harrison gave some evidence that insects which have developed resistance to one insecticide may become resistant to others.

—MARGARET LETHBRIDGE.

WILSON, S. G. (1953). **A survey of the distribution of the tick vectors of East Coast fever in East and Central Africa.**—*Proc. XVth Int. vet. Congr. Stockholm.* **1953. 1,** Pt. 1. 287-290. [In English. French and German summaries.] **1547**

Rhipicephalus neavei and *Amblyomma gemma* were found occurring together in clearly demarcated areas of low rainfall in the Northern regions of Uganda and Kenya. *R. appendiculatus* and *A. variegatum* were associated in well demarcated areas of high rainfall in the Highlands of Kenya and Tanganyika, the Rift Valley, Lake Tanganyika, Lake Nyasa, and Portuguese East Africa. The distribution of *R. evertsi, R. jeanilli, Rayrei lewis* and *Boophilus* species appeared to be more irregular.—R.M.

THEILER, G. & ROBINSON, B. N. (1953). **Zoological survey of the Union of South Africa. Tick survey : Part VII.—Distribution of *Haemaphysalis leachi*, the yellow dog tick.**—*Onderstepoort J. vet. Res.* **26**, 83-91. **1548**

Population of *H. leachi* is correlated with climate and vegetation, being greatest where the climate is damp and mild. The authors suggested that wild carnivores are not hosts of this tick.—BERYL A. KAY.

ARTHUR, D. R. (1953). **The capitulum and feeding mechanism of *Ixodes hexagonus* Leach. II.**—*Parasitology*. **42**, 187-191. **1549**

The author described the method of skin penetration by *I. hexagonus* and the skin reaction of the host to tick bites. A " cement " layer, probably a salivary secretion of the tick, precedes the hypostome as it penetrates into the skin.—JAS. G. O'SULLIVAN.

ENIGK, K. & GRITTNER, I. (1953). Zur Zucht und Biologie der Zecken. **[The breeding and biology of ticks.]**—*Z. Parasitenk.* **16**, 56-83. **1550**

This is a fairly comprehensive general review based mainly on a study of the literature and upon observations on 24 ixodids and 6 argasids, and is divided into 3 parts *viz*: the maintenance of hard and soft ticks on and off the host, and diseases of ticks. The authors described the technique for the attachment of feeding bags to the ears of the rabbit and dog, and to the tail of the horse and ox, for use in studies with ticks.—M. L. CLARKE.

See also absts. **1723** (report, Basutoland); **1724** (report, Somaliland Protectorate).

PARASITES IN RELATION TO DISEASE [HELMINTHS]

BECKER, E. R. (1953). **How parasites tolerate their hosts.**—*J. Parasit.* **39**, 467-480. **1551**

B. described the probable mechanism, by which an endoparasite counters the action of the proteolytic enzymes, antibodies, tissue reactions, and phagocyte cells of the host. He suggested that the parasites tolerate these hostile agents of the host by virtue of certain polysaccharide compounds they fabricate or by masquerading behind the mucoid materials of the host, that are functionally, and perhaps chemically, similar to their own.—D. W. JOLLY.

I. ROBERTS, F. H. S. (1953). *Zygoribatula longiporosa* **Hammer (Oribatei : Acarina), an intermediate host of *Moniezia benedeni* (Moniez) (Anoplocephalidae : Cestoda) in Australia.**—*Aust. J. Zool.* **1**, 239-241. **1552**

II. HAMMER, M. (1953). **A new species of oribateid mite from Queensland.**—*Ibid.* 236-238. **1553**

I. Of a large number of eight species of oribateid mites from cattle pastures in south-east Queensland only *Z. longiporosa* were infested with cysticercoids of *M. benedeni*. The distribution of this species varied considerably from place to place in a pasture. The number of mites of this species infested with cysticercoids varied from 0 to 21%.

Although species of *Galumna* were present, no infested mites were found, which is surprising in view of reports from other countries that mites of this genus are commonly infested with cysticercoids of species of *Moniezia*. Species of *Scheloribates* which are also reported as intermediate hosts elsewhere were found, but none was infested.

II. H. described *Zygoribatula longiporosa*, an intermediate host of *Moniezia benedeni*. It is closely related to *Z. frisiae* (Oudemans) but has distinctive differential features.

—H. McL. GORDON.

IPPEN, R. (1953). Zur Pathogenität des Strongyloides ransomi unter besonderer Berücksichtigung seines Sitzes in der Schleimhaut der Darmwand. **[Pathogenicity of *S. ransomi* in the intestinal mucosa of pigs.]**—*Arch. exp. VetMed.* **7**, 36-57. **1554**

Four piglets, aged 6–16 weeks were repeatedly exposed to concentrated cultures of filariform *Strongyloides* larvae. Haemoglobin estimations, red and white cell counts and differential white cell counts were made at intervals up to 24 days. These showed an erythropenia, eosinophilia and hyperleucocytosis. The main lesions found P.M. were extensive petechial haemorrhages in the lungs, and histological sections revealed the presence of larvae in the lungs and skin, and of parthenogenetic females in the mucosa and epithelium of the glands of Lieberkühn and Brunner in the small intestine.

—M. L. CLARKE.

GALLIARD, H. & BERDONNEAU, R. (1953). Strongyloïdose expérimentale chez le chien. Effets de la cortisone. Résultats du test de Thorn à l'hormone corticotrope (A.C.T.H.). **[Experimental strongyloidosis in dogs and**

effects of cortisone and ACTH.] — *Ann. Parasit. hum. comp.* **28,** 163-171. **1555**

Of 4 young dogs given " transcutaneously " 10–20,000 larvae of *Strongyloides stercoralis* from human patients, 2 developed heavy infestations lasting 120 and 180 days respectively; in the other 2 infestation was light and lasted only 30 and 35 days. Cortisone treatment, given only to the first two, may have influenced the persistence of the parasites. A fifth dog which had been resistant to previous inoculations of larvae, when given injections of cortisone before and after re-inoculation of larvae developed a heavy infestation which, however, lasted only 40 days.—S. F. M. Davies.

Beck, J. W. (1953). **Xenodiagnostic technic as an aid in diagnosis of trichinosis.**—*Amer. J. trop. Med. Hyg.* **2,** 97-101. **1556**

Using a direct compression method, samples weighing 50–195 g. were examined, in portions of 5 g., from 100 human diaphragms from Mexico City. Fifteen had very light infestations and 12 of these had less than one cyst per g. of tissue. To detect viability of the cysts 14 of the positive samples were fed to albino rats, 5 of which became infested.—M. L. Clarke.

Witenberg, G. (1951). **[Some unusual observations on helminthiasis in Israel.]**—*Harefuah.* **41,** 180-182. [In Hebrew. English summary.] **1557**

A note on the finding of *Ancylostoma caninum,* together with *Necator americanus,* in the faeces of a human being.

Turner, J. H. (1953). **Viability studies on eggs and infective larvae of *Nematodirus spathiger* (Railliet, 1896), a trichostrongylid nematode of ruminants.**—*J. Parasit.* **39,** 589 - 598. [Abst. from author's summary.] **1558**

Third stage infective larvae of *N. spathiger* possess unusual ability to survive on pasture under the annual complex of weather conditions of Maryland. Although in general more living larvae were recovered from test plots during the summer and autumn than during the winter and spring, many of those recovered during the former period were in poor condition and ex-sheathed, whereas all those recovered during the latter period were sheathed and in excellent condition. In the former period 70% of the larvae recovered were from grass, whereas in the latter 90% of those recovered were from the humus and sub-surface soil. Desiccation imposed the greatest hardship on the larvae. Freezing had relatively little effect on viability.

Boecker, H. (1953). Die Entwicklung des Kaninchenoxyuren *Passalurus ambiguus.* **[Life-cycle of *P. ambiguus.*]**—*Z. Parasitenk.* **15,** 491-518. **1559**

Passalurus eggs laid in the rectum in the blastula stage, developed to third stage infective larvae within 18–24 hours. These larvae hatched in the small intestine only after passing through the stomach. A retrograde infection is therefore impossible. The prepatent period in two cases was found to be 56 and 64 days and the duration of infestation in one case was 106 days.

—M. L. Clarke.

Hales, D. R. & Welch, A. D. (1953). **A preliminary study of the anthelmintic activity of cyanine dye 715 in dogs.**—*J. Pharmacol.* **107,** 310-314. **1560**

Of various cyanine dyes given orally to dogs No. 715 in particular was an effective anthelmintic for *Ascaris, Trichuris* and *Ancylostoma* infestations in the dog, but not for tapeworm infestations.

Treatment with " 715 " in the dosage used caused anorexia and sometimes vomiting, mild transient diarrhoea and slight reversible changes in the renal tubules.—A.S.

Rogers, W. P. (1952). **Nitrogen catabolism in nematode parasites.**—*Aust. J. sci. Res.* Ser. B. **5,** 210-222. **1561**

Metabolic changes were measured under aerobic and anaerobic conditions in *Nematodirus* spp. and *Ascaridia galli* kept for 24 hours in a non-nutrient medium containing streptomycin and penicillin to prevent bacterial growth. Mince prepared from these nematodes and from *A. lumbricoides* (homogenates from the intestine and muscle) was similarly studied. Ammonia predominated over urea and uric acid as the chief excretory products. This character of the nitrogen catabolism of nematodes parasitic in the alimentary canal is in accord with the free availability of water from the environment. The production of urea was reduced under anaerobic conditions with *Nematodirus* spp., but not with *A. galli* which is largely anaerobic *in vivo* [*V.B.* **20,** 2602]. Material precipitated from the excreta of the nematodes by phosphotungstic acid, but not by trichloracetic acid, is of considerable interest.

The total amount of soluble nitrogenous compounds excreted by *Nematodirus* spp. was 3–6 times that of *A. galli,* possibly because the former may have utilized protein as a source of energy to a greater extent.

Urea was formed in the parasites by breakdown of purines. The difference in the rate of purine catabolism of tissue preparations from young and old *A. galli* was pronounced and it seems that certain metabolic activities of the parasites are suppressed or lost as they grow larger.—H. McL. Gordon.

McFadzean, J. A. (1953). **Immunity in filariasis of experimental animals.**—*Amer. J. trop. Med. Hyg.* **2,** 85-94. [Author's summary modified.] **1562**

An investigation was made of the immune responses produced in three laboratory filarial infestations: *Dirofilaria repens* in dogs, a species of filarial infection in monkeys and *Litomosoides carinii* in cotton rats. Immune sera with a high titre of complement-fixing antibodies were obtained by immunizing rabbits with *D. immitis* antigen.

These immune sera and sera from infected animals showed only slight or no immune reactions *in vitro* against infective filarial larvae, against adults of *L. carinii* and against microfilariae. Immune serum had no therapeutic action upon infestations by *L. carinii*. Agglutinins, precipitins and adhesions could not be demonstrated. *D. immitis* antigen had no prophylactic or therapeutic action upon infestations by *L. carinii*. Weak immediate skin reactions were obtained in dogs infested with *D. repens*, but not in any of the other animals. A doubtful Prausnitz-Kustner reaction was observed with immune rabbit sera.

The author concluded that filarial infestations do produce a certain immune response but this is small in extent and difficult to demonstrate. The smallness of the immune response may be correlated with the great success of filarial parasites in adapting themselves to their hosts, and it is a good example of the general principle that the more perfect the adaptation of the parasites, the less is the immune response of the host.

Orekhov, M. D. (1952). [*Acanthocheilonema evansi* **infestation of camels in Turkmenia.**] —*Veterinariya, Moscow.* **29,** No. 4. pp. 28-30. [In Russian.] **1563**

The author had established that of the first two larval stages of *A. evansi* (he used the name *Dipetalonema*) the first-stage larvae migrated to the peripheral blood vessels in the spring and back to those of the liver, lungs and heart in the autumn for at least 7 years. In addition, he described a third larval stage, which invaded the transplacental regions and caused lesions in the uterus.

Examination of 4,607 camels revealed that 46·8% of those living adjacent to rivers became affected, while all in the Kara-Kum desert were free. The intermediate host is *Aedes* (*Ochlerotatus*) *detritus*. The bactrian camel is more resistant than the dromedary. The infestation can be symptomless, but when heavy it causes arteriosclerosis with death, abortion and early death of calves. The pathology was described. Fouadin proved the most effective anthelmintic when given in 3 i/v doses of 0·5–0·8 ml. per kg. live wt., and as a prophylactic once annually.—F.A.A.

Hunter, G. C. & Quenouille, M. H. (1952). **A statistical examination of the worm egg count sampling technique for sheep.**—*J. Helminth.* **26,** 157-170. **1564**

The distribution of worm egg counts from each sheep followed a Poisson series and counts on different sheep of the same flock had a negative binomial distribution. Weekly sampling was, in general, adequate.

—Jas. G. O'Sullivan.

Harwood, P. D. (1953). **The anthelmintic properties of phenothiazine.**—*Exp. Parasit.* **2,** 428-455. **1565**

A review of 206 articles published up to 1952. H. discussed the chemistry of the drug, its modification inside the body and its toxicity, particularly the anaemia that may develop in treated horses, the muscular incoordination that may occur in pigs and the photosensitization that may occur in calves and pigs; also the anthelmintic efficiency of the drug for the domestic animals.—Jas. G. O'Sullivan.

See also abst. **1729** (book, control of schistosomiasis).

SPONTANEOUS AND TRANSMISSIBLE NEOPLASMS AND LEUCAEMIAS [INCLUDING FOWL PARALYSIS]

Courreges, P., Louf, R., Boyer, A., Barrairon, E., Petrov, Y., Dagain, R. & Legeay, G. (1953). Contribution à l'étude de la "neurofibromatose" cutanée du cheval. **[Peripheral gliomas of the horse.]** —*Rev. Vét. milit.* **8,** 156-163. **1566**

Three case reports.—E. Cotchin.

DIETRICH, M. (1947). Die Hodengeschwülste bei unseren Haustieren. **[Testicular tumours in domestic animals.]**—*Inaug. Diss., Berlin.* pp. 51. **1567**

D. discussed testicular tumours in animals from an extensive, albeit incomplete, review of the literature, giving a very useful bibliography, and described a personally-examined case of seminoma in a 14-year-old dog.—E. COTCHIN.

DOZZA, G. (1953). Alcune considerazioni sui tumori femminilizzanti del testicolo del cane. **[Intra-testicular tumours of the Sertoli cells in dogs accompanied by feminization.]**—*Nuova Vet.* **29**, 253-256. **1568**

Tumours of the testicle can induce two different syndromes, *viz.* a precocious masculinization when the interstitial cells are involved, or a feminization when the Sertoli cells are affected. In the latter condition there are loss of hair, polyuria and myasthenia.—I. MARTINI.

RAWSON, R. W. (1953). **Hormonal control of neoplastic growth.**—*Bull. N.Y. Acad. Med.* **29**, 595-611. [Abst. from author's summary.] **1569**

The administration of oestrogenic hormones to experimental animals has resulted in the production of tumours of the breast, cervix, uterus, testes and lymph nodes; the administration of pituitary hormones or the induction of increased elaboration of certain pituitary hormones has resulted in the development of uterine placentomas, ovarian, lymphatic, lung, adrenal, breast, testicular and thyroid tumours. By altering the hormonal environment, human tumours of the prostate, breast (male and female), lymph nodes and thyroid gland can be made to recede or to function like normal tissues. These observations have been further investigated for clues which might ultimately lead to physiological methods of controlling the development and course of such tumours.

SYVERTON, J. T. (1952). **The pathogenesis of the rabbit papilloma-to-carcinoma sequence.**—*Ann. N.Y. Acad. Sci.* **54**, 1126-1140. **1570**

An account and discussion of observations on three groups of rabbits—wild Western cottontail rabbits which had naturally-occurring virus papillomas when captured, wild cottontail rabbits with experimentally induced virus papillomas, and domestic rabbits with similarly induced papillomas. Carcinomas developed in nearly 25% of the first two groups, and in nearly 75% of the third group, that were under observation for more than 6 months.

—E. COTCHIN.

MESSOW, C. (1953). Eine tumorförmige Myelose beim Hund. Ein kasuistischer Beitrag zum Vorkommen der Myelose beim Hund. **[Leucaemic myeloid leucosis in a dog.]**—*Mh. VetMed.* **8**, 503-505. **1571**

A dog, three and a half years old, showed a diffuse infiltration of myeloblasts, myelocytes and polymorphs in the spleen, in the portal tracts, and in the gastric mucosa of the pyloric end of the greater curvature of the stomach. No blood examination was made during life, but the histological appearance of the blood in the vessels in section suggested that this was a case of leucaemic myeloid leucosis.—E. COTCHIN.

KENZY, S. G. (1953). **Studies in avian neoplasia. III. Incidence of Rous virus-neutralizing antibodies and lymphomatosis in chickens inoculated with neoplastic and normal tissue suspensions.**—*Amer. J. vet. Res.* **14**, 249-253. **1572**

K. compared the incidence of Rous-neutralizing antibodies and the incidence of visceral lymphomatosis in chickens inoculated with suspensions of different strains of myxosarcoma, lymphoid tumours, or normal tissue. The results varied with the type and strain of tumour inoculated. Some strains caused a high incidence of Rous-neutralizing antibodies and/or lesions of visceral lymphomatosis, whereas other strains gave results similar to the inoculation of normal tissue.—R.M.

DARCEL, C. LE Q. (1952). **Nitrofurazone and avian lymphomatosis.**—*Vet. Rec.* **64**, 400-401. [Author's summary and conclusions modified.] **1573**

Whilst the tumour-inhibitory effect of nitrofurazone has been observed in the mouse associated with enlargement of the adrenal glands, no inhibitory effect on the growth of lymphoid tumour strain RPL 12, or enlargement of the adrenal glands, was observed in chicks following administration of 0·22% nitrofurazone in the mash. Feeding of 0·011% nitrofurazone in the mash for 75 days did not prevent the occurrence of cases of avian lymphomatosis in an experiment in which birds were retained for 240 days.

COTTRAL, G. E. & WINTON, B. (1953). **Paralysis in ducks simulating neural lymphoma-**

tosis in chickens.—*Poult. Sci.* 32, 585-589. **1574**

Five ducks from a flock affected with lameness and paralysis were examined P.M. Histological examination of material from the sciatic nerve of one case revealed a condition simulating that seen in neural lymphomatosis of fowls.—F. T. W. JORDAN.

NUTRITIONAL AND METABOLIC DISORDERS

ROBERTS, R. S. (1953). **The use of bacteria as a food supplement.** [Correspondence.]—*Vet. Rec.* 65, 573. **1575**

This is a preliminary report on the use of "coliform protein" (a dense suspension of killed *Bact. coli* in tap water) in the diet of young rats, chicks and baby pigs. In each species comparison between a basal diet alone and additions of "coliform protein" and conventional protein supplements demonstrated equal or better growth rates with the bacterial protein. No harmful effects were observed in the animals and the flesh was normal.

—A. H. LINTON.

DIERNHOFER, K. (1953). Verabreichung von Panseninhalt bei Verdauungsstörungen der Wiederkäuer. [**Administration of ruminal content in the treatment of digestive disorders in ruminants.**]—*Wien. tierärztl. Mschr.* 40, 398-402. [English, French and Italian summaries.] **1576**

Some of the micro-organisms essential to normal ruminal digestion are not conveyed to the rumen by feeding-stuffs but only by ingestion of rumen contents from healthy adults. Since digestive disorders in newly weaned calves may be due to the lack of this normal source of rumen flora, D. suggested that they should be treated by administration of small amounts of cud from a normal ruminating cow. He also considered the same procedure—with larger amounts of cud—to be helpful in adult animals with severe digestive disorders of alimentary origin.—G. P. MARSHALL.

SPERBER, I., HYDÉN, S. & ERKMAN, J. (1953). **The use of polyethylene glycol as a reference substance in the study of ruminant digestion.** —*Kgl. Lantbrukshögsk. Ann.* 20, 337-344. [In English. Authors' summary modified.] **1577**

Polyethylene glycol (with a molecular weight of 3,000–3,700) is not adsorbed or destroyed to any considerable extent by ruminal contents, and is non-toxic to the ruminal micro-organisms. It does not pass the ruminal wall. Its only important route of disappearance from the rumen seems to be through the reticulo-omasal orifice. It can therefore be used to assess the flow of water and dissolved substances from the reticulo-rumen into the omasum.

WHYTE, R. O., NILSSON-LEISSNER, G. & TRUMBLE, H. C. (1953). **Legumes in agriculture.**—*F.A.O. Agric. Studies.* No. 21. pp. 367. **1578**

An account of the growth and cultivation of legumes (peas, beans, the grain, forage, and green manure legumes) for animal feeding in relation to climate, soil, and pests. The authors described methods of cultivation in the tropics and sub-tropics. They indicated those poisonous to livestock.—S. E. FOX.

LINDAHL, I. L., DAVIS, R. E., MILLIGAN, J. L., ELLIS, N. R., BIRD, H. R., STEVENSON, J. W. & MACHLIN, L. J. (1952). **Feeding qualities for livestock of distiller's corn byproducts from fungal amylase-converted mashes compared with those from malt amylase-converted mashes.**—*Tech. Bull. U.S. Dep. Agric.* No. 1053. pp. 31. **1579**

Fungal amylase, replacing barley malt amylase, yields similar distiller's by-products. These products were compared for toxicity, palatability and effect on growth. They were equally efficient for cattle, lambs and growing chickens, though pigs and sheep preferred the malt-converted mash. Both could replace linseed oil meal for lambs and were effective sources of B vitamin. Fungal amylase mash contained slightly less crude protein, but both contained adequate methionine and vitamin B_{12}. Fungal amylase produced feedstuff by-products as good as those from malt amylase.

—J. M. LEACH.

BRAUDE, R., KON, S. K. & PORTER, J. W. G. (1953). **Antibiotics in nutrition.** — *Nutr. Abst. Rev.* 23, 473-495. **1580**

When antibiotic (aureomycin, terramycin, bacitracin, penicillin or streptomycin) was fed to pigs at the rate of about 5–50 g. per ton of feed an increase in growth of 10–15% and increase in feed utilization of 3–5% was usually obtained. The best results were obtained with young fattening animals. No adverse effect

upon piglets could be shown when sows were given antibiotics.

The growth of chicks and turkey poults was stimulated by the addition of antibiotics to the feed. So called ' germ-free ' birds were not stimulated. No adverse effect could be shown on eggs or chicks reared from birds receiving antibiotics.

In ruminants there was some evidence of satisfactory use of antibiotics for calves and lambs, but evidence of harmful results was also shown.

There was some evidence of growth response to antibiotics in small experimental animals kept on a non-synthetic diet, but these substances were lethal to g. pigs.

Attempts at explanation of the effects of antibiotics have not given definite results. That the population of the gut is satisfactorily affected is probable. The mode of action might be by encouraging the growth of useful organisms or by discouraging harmful ones. The latter view is lent support by the observation that chicks reared under hygienic conditions in new buildings were less affected than those reared in old uncared-for quarters.—R. MARSHALL.

MOCH, R. (1953). Vermag der antibiotische Wuchsstoff " Entan " die Legetätigkeit der Hühner zu steigern? **[Effect of feeding fowls with " Entan " (residue from the manufacture of terramycin) on egg production.]**—*Dtsch. tierärztl. Wschr.* **60,** 454-455. **1581**

In an experiment with 14 hens, the addition to the diet of a terramycin culture residue, rich in vitamin B_{12}, was followed by a definite increase in egg yield, and in the average size of the eggs.—J. EDWARDS.

ANDERSON, G. W., CUNNINGHAM, J. D. & SLINGER, S. J. (1952). **Effect of terramycin and certain phenylarsonic acid derivatives on the growth and intestinal flora of turkey poults.**—*J. Nutr.* **48,** 539-552. **1582**

Terramycin, magnesium 4-hydroxyphenylarsonate and 3-nitro-4-hydroxyphenylarsonic acid (but not two other derivatives of the same acid), when added to the diet of female turkey poults either alone or in combination, produced highly significant increases in their body weight. These were in most cases accompanied by increases in the counts of lactobacilli and by a reduction of the pH of caecal contents.

—G. P. MARSHALL.

REID, R. L. (1953). **Studies on the carbohydrate metabolism of sheep. VI. Interrelationships between changes in the distribution and levels of glucose and in the levels of volatile fatty acid in the blood of lambs.**—*Aust. J. agric. Res.* **4,** 213-223. [Author's summary slightly modified.] **1583**

The post-absorptive blood glucose in lambs fell steadily with advancing age from levels of 85–90 mg.% in the first week of life. Stable adult levels were reached in each of 6 lambs at an age of 6–9 weeks.

A large proportion of the decline in whole-blood glucose was due to a steady and almost complete disappearance of glucose from the corpuscles; plasma-glucose levels tended to be maintained during the first 4–5 weeks of life. Corpuscle - : plasma - glucose ratios decreased from an initial range of 0·45–0·99 to less than 0·15. In 8 adult sheep the ratios were in the range 0·0–0·26.

Blood volatile fatty acid levels in fed lambs increased steadily with advancing age. Levels characteristic of adult sheep on the same rations were not reached until an age of at least three months.

R. concluded that the fall in post-absorptive blood glucose in lambs and calves, with increasing age, is largely due to factors other than the functional development of the rumen. He discussed these factors.

DALGAARD-MIKKELSEN, S., KVORNING, S. A., MOMBERG-JØRGENSEN, H. C., PETERSEN, F. H. & SCHAMBYE, P. (1953). Studier over " gult fedt " hos mink. **[" Yellow fat disease " in mink.]**—*Nord. VetMed.* **5,** 79-97 [In Danish. English and German summaries.] **1584**

The authors described the histology of the various lesions found in " yellow fat disease " in mink. They discussed the role of vitamin E and highly unsaturated fatty acids in the aetiology, treatment and prevention of the condition; their importance was confirmed by feeding experiments and by the examination of mink diets used in practice.—H. BOYD.

DEAN, R. F. A. (1953). **Plant proteins in child feeding.**—*Med. Res. Counc. Spec. Rep. Ser.* No. 279. pp. 163. London: H.M. Stat. Off. 10s. **1585**

In Germany between 1947 and 1949 trials were made to assess the value of malted cereal (barley and wheat or maize) and soya bean mixtures with and without dried skimmed milk in comparison with fresh whole milk in supplementing the basic diet of children. These ranged in age from the new-born to those of 11 years old and were residing in orphanages and schools. The basic diets consisted largely of

milk, semolina pudding and vegetables. Although bad effects were observed as a result of faulty preparation of some of the plant substitute mixtures, they were able to replace about half the milk in the diets of infants up to one year old. Children of 1–2 years old throve and were brought into good condition with at least 2 of the plant substitute mixtures which appeared to be nearly perfect substitutes for all the milk in their diet. Added dried skimmed milk did not appear to confer any benefit. For children of 2–6 and 7–11 years of age, nearly all the supplementary substitute mixtures gave excellent results, although for optimal growth a small amount of milk in addition seemed to be necessary. They were then as good as an equicaloric supplement of full cream milk. Removal of the trypsin inhibitor from the plant substitute mixtures appeared to be beneficial.

—A. Ackroyd.

Oyaert, W. & Bouckaert, J. H. (1953). **Amino acid contents of rumen liquids.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. 1, Pt. 1. 524-530. [In English. French and German summaries.] **1586**

The authors compared the amino acid content of rumen contents of cows with that of foods composing different rations. The concentrations of the 10 principal amino acids in the rumen remained constant, even when the sole source of nitrogen in the diet was zein or urea.—R.M.

Jarl, F. (1953). **Mineral metabolism in dairy cows.**—*Kgl. Lantsbrukshögsk. Ann.* **20,** 151-203. [In English. Author's summary modified.] **1587**

In lactating dairy cows the phosphorus was equally well utilized in bone meal, dicalcium phosphate, disodium phosphate, and in an acid phosphate added as preservative to grass silage. Addition of vitamin D to a ration extremely low in phosphorus had no effect upon the mineral balance or the output of Ca or P in the faeces. When vitamin D and a supplement of either disodium phosphate or wheat bran were added to a phosphorus-low ration, the output of phosphorus and calcium in the faeces decreased. Cows fed rations short in phosphorus had poor appetite and decreased milk production.

The "normal" value of blood serum phosphorus in the cows varied between 4 and 6 mg.%. After feeding on a ration low in phosphorus the P values dropped to one or two mg.% after parturition, but rose to 4 mg.% within 10–14 days after a supplement of 10 g. of P was added, either as bone meal, dicalcium phosphate or disodium phosphate. When 10 g. phosphorus in wheat bran or in ground oats was added, the blood serum level was not restored within 10–14 days, nor even after 40 days. It was calculated that lactating dairy cows utilize phosphorus in wheat bran up to 65% and phosphorus in ground oats up to 37% of the phosphorus utilized in disodium phosphate. When wheat bran and vitamin D were added, the phosphorus in wheat bran was utilized up to 78% of the phosphorus in disodium phosphate, and after 15 days the phosphorus serum level had reached normal values.

When lactating cows on a phosphorus-low ration were given a supplement of phosphorus the fat percentage of the milk decreased. The serum calcium level was not influenced by the low phosphorus content in the feed. The blood serum Ca remained between 11·6 and 12 4 mg.% even during the depletion period.

In the urine of the experimental cows the content of phosphorus was 0·02 g. per l. and it remained at this level during the depletion period and after calving. The calcium output in the urine varied considerably. Before calving it was 0·09 g. per l.: after calving it increased to 0·21 g. per l. When phosphorus supplements were given the output of calcium in the urine always decreased.

The major portion of the calcium supplied in the ration to dairy cows is voided in the faeces. In this experiment, 93 and up to 100% of the calcium fed was found in the faeces when the cows were in normal milk production and kept on a low phosphorus diet. When 10 g. phosphorus and 22 g. calcium or 10 g. phosphorus alone were supplied the amount of calcium voided in the faeces always decreased. The effect of minerals (feed phosphates) upon the Ca retention was better than that of wheat bran, and that of wheat bran was better than that of oats, when equal amounts of phosphorus were supplied in each case. A supplement of 10 g. P in disodium phosphate improved the Ca retention by 17·4 g., the corresponding values for wheat bran and oats being 11·5 and 1·8 g. respectively. When the phosphorus supplement in minerals was increased from 10 to 20 g. per cow, the improvement in calcium retention increased from 17·4 to 23·6 g. Ca.

Dick, A. T. (1953). **Influence of inorganic sulphate on the copper-molybdenum interrelationship in sheep.** [Correspondence.]—*Nature, Lond.* 172, 637-638. **1588**

The power of molybdenum to limit the storage of copper in sheep was found to be

greater in sheep receiving a lucerne hay diet than an oat hay diet. Fractionation indicated that the respective inorganic sulphate contents of the two types of hay could account for this variation, that of the former, at 0·3% being ten times that of the latter. These observations are considered to throw light on the conflicting observations made by various workers on copper and molybdenum metabolism in ruminants.

—C. C. BANNATYNE.

UNGAR, H. & UNGAR, R. (1952). **Further studies on the pathogenesis of urate calculi in the urinary tract of white rats.**—*Amer. J. Path.* **28**, 291-301. **1589**

Vesicle calculi (urates) in rats with coarse nodular hepatic cirrhosis following carbon tetrachloride poisoning apparently originate in the renal pelvis. Their development is not conditioned by vitamin A deficiency.—J. E. SMITH.

HELMBOLDT, C. F., JUNGHERR, E. L., EATON, H. D. & MOORE, L. A. (1953). **The pathology of experimental hypovitaminosis A in young dairy animals.**—*Amer. J. vet. Res.* **14**, 343-354. **1590**

The authors reviewed the lesions of vitamin A deficiency in cattle, with 59 references: they consider that not all of these lesions are specific. They described experiments in which they produced deficiency as rapidly as possible in calves to obtain early lesions. They consider epithelial changes in the parotid duct to be pathognomonic: diarrhoea, incoordination and increased c.s.f. pressure were also consistently produced at blood plasma levels of 4 μg. vitamin A/100 ml. Carotene and ascorbic acid were both ineffective, but administration of vitamin A partially reversed the lesions of the parotid gland and relieved symptoms in 2–4 weeks.—JOHN SEAMER.

SCOTT, M. L. (1953). **Prevention of the enlarged hock disorder in turkeys with niacin and vitamin E.** — *Poult. Sci.* **32**, 670-677. **1591**

Nicotinic acid and vitamin E are essential factors required in preventing enlarged hock disorder. Dried brewer's yeast is of value because of its high content of available nicotinic acid and of antioxidants capable of protecting vitamin E.—F. T. W. JORDAN.

LEOSCHKE, W. L., LALOR, R. J. & ELVEHJEM, C. A. (1953). **The vitamin B_{12} requirement of mink.**—*J. Nutr.* **49**, 541-548. **1592**

The authors claimed that a methanol liver extract found to be essential for mink is vitamin B_{12}; that the requirement for vitamin B_{12} of mink is high, and that more is synthesized on a sucrose diet than on one containing dextrin.

—JOHN SEAMER.

ANON. (1953). **Conference on metabolic disorders and other problems related to grassland and fodder crops and innovations in animal husbandry,** held at the Headquarters of the Wellcome Foundation, 183-193, Euston Road, London, N.W.1, November 20th and 21st, 1952. Report of proceedings. pp. 166. London: British Veterinary Association. B.V.A. Publ. No. 23. **1593**

I. BARRON, N. S. (1953). **Winter scours, enterotoxaemia and low fat and solids-not-fat in milk.**—*Proc. Conf. metabolic Disorders, Brit. Vet. Ass. Publ.* No. 23. pp. 21-28. Discussion pp. 28-34. **1594**

II. WHITE, J. B. (1953). **The milk fever syndrome.**—*Ibid.* pp. 35-41. Discussion 41-49. **1595**

III. HIGNETT, P. G. (1953). **The significance of some major and minor mineral elements, and factors affecting their metabolism.**—*Ibid.* pp. 50-57. **1596**

IV. SHAND, A. (1953). **The goitrogenic factor in kale.**—*Ibid.* pp. 58-60. Discussion pp. 61-65. **1597**

V. LAMONT, H. G. (1953). **Urticaria. Photosensitisation. Blue nose in horses. Oedema of the bowel in pigs.**—*Ibid.* pp. 85-92. Discussion pp. 92-100. **1598**

VI. TAYLOR, E. L. (1953). **Grassland management and parasitism.**—*Ibid.* pp. 112-120. Discussion pp. 120-128. **1599**

VII. INGLIS, J. S. S. (1953). **Relation of feeding-stuffs to the rearing of calves.**—*Ibid.* pp. 127-131. **1600**

VIII. GREGOR, A. (1953). **Rye-grass staggers. Rape poisoning. Feeding of beet tops. Dietetic haematuria. Selenium poisoning.**—*Ibid.* pp. 132-136. Discussion pp. 136-141. **1601**

X. MENZIES, D. W. (1953). **Bloat and the bloat survey.**—*Ibid.* pp. 142-154. Discussion pp. 154-161. **1602**

I. Infectious diarrhoea of dairy cows [see *V.B.* **19**, 427] is widely distributed in S. England. It resembles enteritis caused by *Vibrio jejuni,* and responds to a drench of 1–2 oz. of copper sulphate.

The relation of nutrition to enterotoxaemias is not clear, but it appears important that the level of nutrition should be kept as uniform as possible.

II. W. considered that there had been

no increase in the total incidence of milk fever cases, but that a higher proportion were complicated by hypomagnesaemia, etc. Recumbent cases of hypocalcaemia and hypomagnesaemia with hypophosphataemia usually occur later (3–8 days) after calving than do cases of hypocalcaemia alone.

He felt that a predisposing factor to hypomagnesaemia may be the feeding of too much protein and insufficient carbohydrate, particularly in cold, rough weather conditions. He deplored the tendency to reduce hay intake, which, by disturbing rumen function, may have a bearing on hypomagnesaemia and an increasing incidence of ketosis cases.

III. A discussion on the relation of deficiencies of calcium, phosphorus, magnesium, iodine, cobalt and copper to disease.

H. summarized the results of studies on the requirements of phosphorus for optimum fertility in cattle.

A type of infertility in cattle, associated with hypertrophy of the acinar epithelium of the thyroid occurs in herds receiving excessive protein. Much more iodine than the estimated daily requirement of 50–100 μg. per 100 lb. body weight has to be fed to restore normal fertility.

In a preliminary experiment on the possible interference of lime with utilization of copper, ewes dosed with 2 oz. calcium carbonate over 2 years showed decreased fertility, as compared with controls, but lambs born alive were normal, with normal, and in some cases higher, blood and liver copper values.

IV. A commercial flock was divided into three groups of 40, 45 and 350 ewes respectively. The first group was folded on kale for an unstated period before lambing, while the second and third groups received kale, grass, mangold tops and cabbage. In addition, group 3 was given 0·25 g. potassium iodine per head once a fortnight.

The lamb crop for group 1 was 150%, but two thirds of the lambs were born dead and had markedly enlarged thyroid glands.

The mean weights of the thyroid glands from lambs which died were 22·09, 2·02 and 1·04 g., and the mean iodine contents 5·79, 49·9 and 52·1 mg.% for groups 1, 2 and 3 respectively; 30 mg.% is regarded as the critical level.

In groups 2 and 3 the live lamb crops were over 150% and the lambs were healthy.

V. L. described an urticarial type of syndrome, believed to be a form of contact allergy, which occurred in 5 Shorthorns and a Jersey cow grazing wild white clover pasture. Similar symptoms of urticaria with pulmonary oedema were produced by a shock dose of *Trichomonas foetus* antigen given to cattle previously sensitized to it.

He discussed symptoms of photosensitization, including " Blue Nose " of horses, and " Brown Nose " of cattle. Photosensitization of sheep in the Antrim hills is locally attributed to the ingestion of Bog Asphodel (*Narthecium ossiphragum*).

He reviewed the experimental transmission of oedema disease of pigs and its treatment.

VI. T. emphasized the economic importance of sub-clinical parasitic infestation, and discussed host-parasite relationships and the control of parasites in high stock concentrations.

The relation between fog fever and lungworm infestation is still confused. Experimental work with calves indicates that infection with *Dictyocaulus viviparus* is often associated with the occurrence of a fog fever syndrome about 3 weeks after initial infection, or 12–14 days after re-infection. A similar condition has been produced by the administration of embryonated eggs of *Ascaris lumbricoides*. The good conditions for the development and ingestion of larvae afforded by aftermath may account for its association with fog fever.

In answer to a question, T. stated that he considered it better to aim at immunizing calves by exposing them to infested pastures at an early age, than to attempt to keep them parasite-free.

VII. The author described a condition in which the syndrome included scouring and meningitis with sudden death in calves from a few days to 3 weeks of age. P.M. examination usually revealed *Bact. coli* septicaemia. These cases were found to be associated with high level feeding of concentrates containing beans or fish meal to the milking cows. On one farm it developed when cows grazed a heavily manured luscious pasture.

A similar condition was produced experimentally in calves receiving milk from a cow fed a ration containing 33% bean meal.

VIII. A type of staggers may occur in cattle grazing pastures in which rye-grass is predominant. The symptoms are similar to those of hypomagnesaemia, and most cases respond to magnesium therapy.

Rape poisoning may occur where rape forms all or most of the diet. G. discussed the manifestations of this condition, and suggested that it was responsible for photosensitization which developed in a Friesian cow. In the discussion, E. T. Rees Evans confirmed the development of a macrocytic anaemia in cattle grazing rape.

Dietetic haematuria has been observed in cattle grazing kale, during periods of wet inclement weather.

G. discussed selenium poisoning; no new cases are reported for the British Isles.

IX. M. dealt with the types of bloat which occur, and the importance of adequate roughage in the prevention of bloat. The use of seeds mixtures containing Tall Fescue has been found to reduce the incidence of bloat.

Bloat appeared to be of little economic importance in Cornwall; most cases in the S.W. occurred in Somerset.

The results of the bloat survey of 1951 showed that most cases occurred from April to mid-May followed by a second peak in September. Cases were usually, but not always, associated with a high protein, low fibre, content in clover pasture. Dairy breeds appeared more susceptible than beef breeds. There was no clear-cut relation between incidence and weather conditions.

L. E. Hughes gave the data for Wales, where the incidence was roughly 0·3% of the total cattle. Most cases occurred in Ayrshires. In 1950 there was no apparent difference between the effect of young leys, clovery leys or old pasture, but in 1951 the incidence was greatest on clovery leys. The frothy type of bloat appeared to be more common on kale. On one farm observations suggested that a genetic factor was involved.—W. H. Parr.

Brüggemann, J., Bronsch, K. & Krauss, W. (1953). Über den inneren und äusseren Stoffwechsel der gesunden und kranken Haustiere. I. Schilddrüsenfunktionstest bei Schaf und Ratte mit radioaktivem Jod^{131}. [**Metabolism of healthy and diseased domestic animals. I. Thyroid function test in sheep and rats using radio-active iodine.**]—*Mh. Tierheilk.* **5,** 161-176. **1603**

The authors described the technique of the test and the results obtained with it in 4 sheep and in 5 rats. With the aid of the test one cachectic sheep was found to have hypothyroidism.—J. Edwards.

Zacherl, M. K. & Stöckl, W. (1951). Über den Jodgehalt von Ferkelschilddrüsen bei enzootischem Myxödem. [**Iodine content of the thyroid gland in piglets with enzootic myxoedema.**]—*Hoppe-Seyl. Z.* **287,** 177-184. **1604**

The relative iodine content of the thyroid gland in piglets with enzootic myxoedema was 0·5–0·9 mg./g. dry substance as compared with 1·0–1·4 mg./g. dry substance in normal piglets. —H. Behrens.

Thomas, J. W. & Moore, L. A. (1953). **Thyroprotein feeding to dairy cows during successive lactations.**—*J. Dairy Sci.* **36,** 657-672. **1605**

Thyroprotein caused an immediate increase in the level of milk production and in butterfat, but the increases were only transient unless extra nutrients were also supplied. Furthermore, over an entire lactation the feeding of extra nutrients alone gave as great an increase in the amount of milk produced as did extra nutrients + thyroprotein. Production efficiency was not increased by the feeding of thyroprotein, body weight decreased more in cows receiving it than in controls, and the mortality rate of calves born to thyroprotein-fed cows was higher than in other calves. The authors concluded that the feeding of thyroprotein to dairy cows is not a desirable practice.—C. A. E. Briggs.

Jasper, D. E. (1953). **Acute and prolonged insulin hypoglycemia in cows.**—*Amer. J. vet. Res.* **14,** 184-191. **1606**

J. studied the effect of level and duration of dosage on hypoglycaemia induced by insulin in cows, and gave data on the effect of increase of dosage, rate of fall of blood sugar after injection and the rate of response to insulin. —W. S. Marshall.

Johnson, R. B. (1953). **A theoretical discussion of ruminant ketosis.**—*Amer. J. vet. Res.* **14,** 366-375. **1607**

J. compared and contrasted normal catabolism of glucose, fat and protein, and ruminal absorption and metabolism. He considered the crux of the problem to be the small assimilation of glucose by the ruminant: additional requirements may be met from short chain fatty acids with resulting interference in other metabolic processes; from fats, with resultant ketosis; or perhaps from protein, but this latter process is not believed to occur in ruminants. The author is experimenting with propylene glycol in the treatment of ketosis aiming to provide a glucose source other than the fats.—John Seamer.

Larsen, P. L. (1953). Bidrag til acetonaemiens aetiologi og terapi. [**Aetiology and treatment of ketosis in cows.**]—*Nord. VetMed.* **5,** 559-566. [In Danish. English and German summaries.] **1608**

An account of the treatment of 20 cases of ketosis in cows with A.C.T.H. Of 13 uncomplicated cases 11 were cured in 1–4 days. In 3 which occurred within 8 days after parturition A.C.T.H. and calcium borogluconate were used successfully. In 4 cases with other complications, treatment was ineffective.—H. Boyd.

GIBBONS, W. J. & WIGGINS, A. M. (1953). **The treatment of acetonemia with ketogestin. Preliminary report.**—*N. Amer. Vet.* **34**, 478-482. **1609**

Ketogestin (11-ketoprogesterone) given to cows affected with ketosis, at a dosage of 2 g. s/c or 1 g. i/m was usually sufficient to bring about recovery. A further inj. of 1 g. after 24 hours was sometimes needed.—R. MARSHALL.

WESTERMARCK, H. W. (1953). **Effect of ACTH on mineral levels as well as on protein fractions and on the eosinophil count in the blood of cows during paresis.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1**, Pt. 1. 540-543. [In English. French and German summaries.] **1610**

W. described the successful treatment with adrenocorticotropic hormone of 4 cases of atypical milk fever in cows which did not respond to the usual treatment with Ca, alone or combined with Mg and P, or to insufflation of the udder by air. In each case the Ca, Mg, P, K and Na levels in the blood were determined before and at intervals after the i/m injection of 0·6 mg./kg. A.C.T.H. Complete recovery took place within 12 hours.—R.M.

WESTERMARCK, H. W. (1953). **Changes in the minerals and trace elements as well as in protein fractions and in the eosinophil count in the blood of cows during paresis and partus after ACTH administration.**—*Nord. VetMed.* **5**, 609-635. [In English. German and Swedish summaries.] **1611**

W. claimed that injections of 0·6 mg. A.C.T.H./kg. body wt. given to cows during puerperal paresis increased their serum calcium levels and was accompanied by a good clinical response. It failed to prevent paresis in one animal. Serum calcium levels were not affected in normal cows.

A decreased eosinophile count, an increase in serum globulin, and small changes in serum inorganic phosphorus, potassium, sodium, copper, and manganese levels after A.C.T.H. administration are reported. Magnesium levels were not affected.—W. H. PARR.

DE CORGANOFF, G. & LE BARS, H. (1953). Accidents consécutifs à l'injection de corticotrophine chez le cheval de course. **[Complications following injection of A.C.T.H. in a horse.]**—*Rev. Path. gén.* **53**, 626-631. Discussion pp. 631 - 633. [English summary.] **1612**

In swimming tests with " trained " rats it was found that resistance to drowning was sustained for up to 8 times as long in animals injected i/m, four hours before the test, with 1–5 units of A.C.T.H. However, in a racehorse which had been given daily doses of 50 g. of potassium chloride and 10 g. of ascorbic acid for 8 days the i/m injection of 1,000 units of A.C.T.H. plus 10 g. of ascorbic acid produced no improvement on its usual performance when tested 4 hours later over a longer course than that to which it had been accustomed by training, and 10 hours after the injection the animal had severe symptoms of shock and oedema, with oliguria and complete inappetence. Some disturbance of the potassium/sodium ratio might have been involved since high dosage of potassium salts alleviated the symptoms.—R. MARSHALL.

See also absts. **1613** (deficiency diseases in Israel); **1727** (symposium, nutritional research); **1728** (book, animal nutrition in India).

DISEASES, GENERAL

FREUND, S. (1952). **[Animal health problems in Israel.]**—*Refuah vet.* **9**, 1-8. [Abst. from English summary, p. 40.] **1613**

From 1948 to 1951 the cattle population increased from 32,800 to 58,600 and sheep and goats from 24,500 to 50,500; the number of laying hens in 1951 amounted to over two and a half million. The combined value of domestic livestock was estimated to be 20 million Israeli pounds. F. spoke of increase in the general disease incidence, mentioning mastitis, vibriosis, TB., brucellosis, anaplasmosis, rabies, " three-day sickness ", and deficiency diseases. He stated that trichomoniasis had been stamped out.—F.A.A.

I. KÖNIG, R. & HONEKER, A. (1951). Die Krankheiten der Ziege. Heft II. Die Krankheiten des Geschlechtsapparates der Ziege. A. Die Krankheiten der männlichen Ziege. B. Störungen der Fruchtbarkeit der weiblichen Ziege. C. Die Zwitterbildung und deren Erkennung beim Ziegenlamm. **[Diseases of goats. II. Diseases of the genital system.]** pp. 99. Dortmund: Verlag für Kleintierzucht, H. Wellershaus. DM.5. Demy 8vo. **1614**

II. HONEKER, A. (1952). Die Krankheiten der Ziege. III. Die Eutererkrankungen der Ziege. **[Diseases of goats. III. Diseases of**

the udder.] pp. 120. Dortmund: Verlag für Kleintierzucht. DM.5. Demy 8vo. **1615**

I. [For a review of Volume I. (Diseases of the digestive system) see *V.B.* 22, 526.] Volume II provides a brief and well illustrated account of diseases of the genital system, artificial insemination, and obstetrics in the goat. One chapter deals with hermaphroditism in twin goats.

II. Diseases of the udder (Volume III) are dealt with in greater detail than the subjects of the two previous volumes. First there is an account of normal anatomy, the technique of milking, and the design of a milking stand. There are chapters on diseases of the skin of the udder, of the teats, and mastitis.

Fifteen of the small-sized pages are devoted to abnormalities in composition and appearance of goat's milk. There is reference to anaemia in babies fed with goat's milk.—R.M.

POLSON, A. & MALHERBE, W. D. (1952). **Changes in the electrophoretic pattern of sera of dogs suffering from various diseases.**—*Onderstepoort J. vet. Res.* 25, No. 4. pp. 13-24. **1616**

The authors gave diagrams of electrophoretic patterns obtained with sera from dogs with distemper and with *Babesia* and *Rickettsia* infections, and discussed them in the light of present knowledge of the diseases. They considered that electrophoretic methods might prove useful in the differential diagnosis of these diseases.—A.S.

I. ANON. (1953). **Proceedings of the twenty-fifth annual meeting of the Northeastern Conference of Laboratory Workers in pullorum disease control, June 16 and 17, 1953.** pp. 108. Connecticut: College of Agriculture, University of Connecticut, Storrs, Connecticut, U.S.A. [No pagination.] [Mimeographed.] **1617**

II. BURR, W. E., JUNGHERR, E. L. & JACOBS, R. E. (1953). **Possible hatchery spread pullorum disease in pheasants and turkeys.**—*Proc. 25th Ann. Meet. N.E. Conf. lab. Wkrs Pullorum Dis. Contr.* June 16 & 17. pp. 2. **1618**

III. ANON. (1953). **Report of the antigen committee.**—*Ibid.* pp. 6. **1619**

IV. ANGSTROM, C. I. (1953). **Observations on an outbreak of fowl cholera in a White Leghorn breeding flock.** — *Ibid.* pp. 6. [Mimeographed.] **1620**

V. PECKHAM, M. C. (1953). **An unusual skin condition in a flock of chickens.**—*Ibid.* pp. 3. **1621**

VI. SPERLING, F. G. (1953). **Ophthalmic aspergillosis in chickens.**—*Ibid.* pp. 2. **1622**

VII. FABRICANT, J. (1953). **The use of antibiotics in the isolation of the chronic respiratory disease agent.**—*Ibid.* pp. 6. **1623**

VIII. WASSERMAN, B., YATES, V. J. & FRY, D. E. (1953). **The cultivation of certain strains of the chronic respiratory disease agent and the turkey sinusitis agent in the tibio-metatarsal joints of chickens.**—*Ibid.* pp. 2. **1624**

IX. JACOBS, R. E., JUNGHERR, E., LUGINBUHL, R. E. & GIAGFORTE, E. (1953). **Serologic studies on air sac infection.**—*Ibid.* pp. 3. **1625**

X. CHUTE, H. L. (1953). **Studies with C.R.D.** [Chronic respiratory disease] **in chick embryos.** (Preliminary report).—*Ibid.* pp. 3. **1626**

XI. DOUGHERTY, E. & FABRICANT, J. (1953). **An attempt to demonstrate an etiologic relationship between " new duck disease " and chronic respiratory disease of chickens.**—*Ibid.* pp. 2. **1627**

XII. GRAY, J. E. (1953). **The pathology of chronic respiratory disease.**—*Ibid.* pp. 2. **1628**

XIII. NELSON, J. B. (1953). **Microörganisms of the pleuropneumonia group and their relation to chronic respiratory disease.**—*Ibid.* p. 1. **1629**

XIV. HAMMAR, A. H., JUNGHERR, E., LUGINBUHL, R. E. & HELMBOLDT, C. F. (1953). **Studies on equine encephalomyelitis of pheasants in Connecticut.**—*Ibid.* pp. 3. **1630**

XV. CRAWLEY, J. F. (1953). **Spray immunization of broiler chicks with combined bronchitis-Newcastle disease live virus vaccines.** —*Ibid.* pp. 3. **1631**

XVI. HITCHNER, S. B. & REISING, G. (1953). **Factors influencing the immune response of birds exposed to sprayed Newcastle vaccine.** —*Ibid.* pp. 5. **1632**

II. The authors discussed the possible spread of *Salmonella pullorum* infection from a breeding flock of pheasants, through eggs sent to a " pullorum passed " hatchery, to turkey eggs sent to the same hatchery from a clean flock.

III. The *Salmonella pullorum* antigens used by the various co-operating States of the U.S.A. were compared culturally, on turbidity, on pH, and on agglutination with six antisera. All except one of the 13 tested proved to be satisfactory.

IV. When sulphonamides (sulphaquinoxaline, sulphamethazine) and antibiotics (strepto-

mycin, aureomycin, bacitracin with penicillin, terramycin) were used singly and in combination in the treatment of a natural outbreak of fowl cholera, temporary suppression of mortality was obtained, but not eradication of the disease.

V. A condition characterized by swelling of the wattles and of the abdominal skin occurred in a flock of fowls; in the affected areas the skin was about half an inch thick. Crystals of cholesterol were identified in skin sections. There was no rise in the blood cholesterol level. The cause of the condition was not determined.

VI. In one of two outbreaks of *Aspergillus* infection, no respiratory lesions or symptoms were observed; there was an ophthalmic condition involving periorbital oedema with discharge from the eyes, with keratitis, usually unilateral. An *Aspergillus* organism was isolated.

VII. F. described the use of mixtures of antibiotics to eliminate contaminating bacterial growth in the isolation of the agent of chronic respiratory disease, and recorded observations on the lesions in infected chick embryos.

VIII. Four strains of the chronic respiratory disease agent and one strain of the turkey sinusitus agent, on inoculation into the tibiometatarsal joint in chickens and adult fowls caused an acute inflammation, whereas neither Newcastle disease virus nor infectious bronchitis virus caused such a reaction.

IX. An account of an investigation into the value of serological tests in the identification of pleuropneumonia-like organisms described by Markham & Wong [*V.B.* **23,** 2494] in a chronic respiratory disease of chicks.

X. A brief description of the predominant gross and microscopic lesions in chick embryos inoculated with the chronic respiratory disease agent.

XI. There appeared to be no aetiological relationship between the "new disease of ducks" [*V.B.* **23,** 2570] and chronic respiratory disease of chickens and turkey poults.

XII. G. described gross and microscopic observations on affected tissues in chickens with chronic respiratory disease and also the lesions associated with a secondary infection with coliform organisms.

XIII. N. compared the organism from chronic respiratory disease of fowls with other organisms of the pleuro-pneumonia group.

XIV. An account of the isolation and identification of the virus of equine encephalomyelitis from pheasants kept in pens and sick from the disease; of the pathogenicity of the virus for a variety of experimental animals and birds, and of the neuropathology in pheasants.

XV. C. presented evidence supporting the value of spray immunization of chicks against Newcastle disease and bronchitis.

XVI. An account of a study of the influence of such factors as serum neutralization titre, particle size of the spray and concentration of virus used, on the resistance to subsequent challenge of chicks immunized by the spray method against Newcastle disease.

—F. T. W. Jordan.

Christodoulous, T. & Tarlatzis, K. (1952). **[Chronic glandular pneumonia in the sheep (jaagsiekte).]**—*Delt. Hellen. kten. Hetair.* **2,** 199-208. [In Greek. French summary.] **1633**

Typical cases of jaagsiekte which occurred among flocks in the district of Argos, Greece, all ended fatally, the proportion of affected animals in a flock ranging from 10–30% in different flocks. Only sheep more than two years old were affected. Attempts to isolate a pathogen and to transmit the disease experimentally failed. The authors discussed preventive measures.—J. M. Tait.

Shuman, R. D., Earl, F. L., Shalkop, W. T. & Durbin, C. G. (1953). **Atrophic rhinitis. I. A herd survey.**—*J. Amer. vet. med. Ass.* **122,** 1-4. **1634**

Earl, F. L. & Shuman, R. D. (1953). **Atrophic rhinitis. II. The rhinoscopic examination of swine as a means of diagnosing atrophic rhinitis.**—*Ibid.* 5-7. **1635**

Shuman, R. D. & Earl, F. L. (1953). **Atrophic rhinitis. III. The evaluation of the rhinoscopic examination for its diagnosis.**—*Ibid.* 7-8. **1636**

I. P.M. examination of 75 pigs from one herd revealed macroscopic lesions of atrophic rhinitis in 36, with a further 7 doubtful cases. There appeared to be no positive correlation between atrophic rhinitis and the recovery from the nasal cavity of streptococci, staphylococci, corynebacteria, pasteurella, *E. rhusiopathiae, Pseudomonas pyocyanea* or trichomonads, nor was there any relationship to the incidence of swine influenza.

II. An auroscope equipped with a variety of specula was used successfully to examine the anterior nasal cavity of live pigs.

III. Rhinoscopic examination was compared with the P.M. findings in 248 pigs. Of 218 cases in which a definite opinion was expressed on rhinoscopy 36 were not confirmed by the P.M. findings, false positives and false negatives being approx. equal.—J. T. Done.

NORDFELDT, S., OLOFSSON, N. E. & SWAHN, O. (1949). Arten och frekvensen av lungförändringar på de i svinstamkontrollen deltagande djuren. **[Studies on the occurrence of lung lesions in pigs officially tested.]**—*Svenska Svinavelsforeningens Tidskrift* No. 2. pp. 1-16. [Abst. from English summary.] [Published in *Medd. Stat. vet-med. Anst. Stockh.* (1950.] **1637**

In a study designed to determine the incidence of swine influenza in experimental pig breeding stations in Sweden, the lungs of 2,022 pigs from two stations were sent in, together with records kept during life, to the State Institute for Veterinary Medicine, Stockholm, in 1944-47 for examination for pneumonia and for nature, age and extent of lesions. The series comprised only animals that had passed official inspection as healthy. Of these 85% showed evidence of pneumonia. Statistical treatment of the data indicated that the degrees of pneumonia present had had only a very slight influence on weight gains. Of the pigs that died during the test period, death was attributed to pneumonia in 60% of cases. Much of the retarded growth of pigs which failed to qualify in the test was also due to pneumonia.

—D. LUKE.

I. MORRILL, C. C. (1952). **Studies on baby pig mortality. X. Influence of environmental temperature on fasting newborn pigs.**—*Amer. J. vet. Res.* **13**, 322-324. **1638**

II. MORRILL, C. C. (1952). **Studies on baby pig mortality: XI. A note on the influence of fasting on body temperature, body weight, and liver weight of the newborn pig.**—*Ibid.* 325-326. **1639**

III. MORRILL, C. C. & SAMPSON, J. (1952). **Studies on baby pig mortality. XII. A note on the influence of ingestion of distilled water, physiological saline, and glucose solutions on fasting newborn pigs.**—*Ibid.* 327-329. [Abst. from authors' summaries.] **1640**

I. In two groups of fasting piglets removed from their dams at birth and held in a cold (57°–61°F.) and a warm (82°–93°F.) environment respectively the rate of development of critical hypoglycaemia varied inversely with the temperature of the environment. Higher temperatures evidently conserved the natal carbohydrate reserves through reduction in rate of heat loss. However, the data suggested that this effect was augmented to some extent by gluconeogenesis in the piglets which lived longer. Even so, critical hypoglycaemia was not prevented under conditions of complete fasting, but only delayed. Through taking advantage of this delay, the use of pig brooders may save piglets born in cold weather to a sow with agalactia, provided the agalactia is incomplete or transient or is soon overcome by treatment.

II. Fasting of new-born pigs was associated with hypoglycaemia and, in the terminal stages, with marked hypothermia, loss of body weight, loss of weight from the liver being relatively greater than from other tissues.

III. The authors studied the effects of ingestion of distilled water, normal saline and glucose soln. in groups of fasting new-born pigs kept in a warm environment. Ingestion of distilled water and saline failed to prevent or delay development of critical hypoglycaemia, although it may have deterred dehydration, promoted renal excretion of nitrogenous wastes, and facilitated temperature regulation to some degree. Ingestion of glucose solution was, however, effective in preventing critical hypoglycaemia, hypothermia, and exhaustion of hepatic glycogen.

PICKETT, D. (1953). **Tonsillitis in the dog.**—*Vet. Med.* **48**, 65-69. **1641**

Chronic tonsillitis was present in about 16% of dogs in Kansas City presented for physical check-up, and in about 50% of dogs that had recovered from severe distemper. P. advocated that tonsillectomy should be carried out when necessary.—J. E. SMITH.

LUND, E. E. (1951). **Mortality among hutch-raised domestic rabbits.**—*Circ. U.S. Dep. Agric.* No. 883. pp. 14. **1642**

An account of a survey of mortality over three years based loosely on morbid anatomy, without any serious attempt to define the actual causes of death.—J. T. DONE.

ANON. (1953). **Treatment of blood disorders with A.C.T.H. and cortisone. Second report to the Medical Research Council by the panel on the haematological applications of A.C.T.H. and cortisone.**—*Brit. med. J.* Dec. 26th, 1400-1401. [Author's summary modified.] **1643**

The results of treatment with A.C.T.H. and cortisone were analysed in a series of 65 patients with various haematological disorders. Favourable responses, including complete remissions, were obtained in a high proportion of patients with acquired haemolytic anaemia and idiopathic thrombocytopenic purpura. In other haematological disorders results were less favourable and complete remissions infrequent. Some cases failed to respond despite receiving apparently adequate dosage.

When there is a good response to A.C.T.H. or cortisone, continued treatment may be necessary to maintain it.

LUMSDEN, C. E. (1951). **Fundamental problems in the pathology of multiple sclerosis and allied demyelinating diseases.**—*Brit. med. J.* May 12th, pp. 1035-1043. **1644**

L. discussed the problem of the pathology of multiple (disseminated) sclerosis in human beings and compared the lesions in man with those of demyelinating diseases in animals.

—W. R. BETT.

ANON. (1952). **Shock syndrome.**—*Ann. N.Y. Acad. Sci.* **55**, 345-542. **1645**

This monograph contains some 26 papers presented to a conference of the New York Academy of Sciences which was convened to consider the question of the shock syndrome. Part I deals with the symptoms and physiological changes associated with shock, consideration being given to such questions as the quantities of blood lost, the coronary circulation in shock, the significance of the metabolic changes during shock, and the shifts of fluid, electrolytes, etc. It is pointed out that acute renal ischaemia is present during shock and if this is prolonged, although the patient may recover from the shock, death may still occur from uraemia. Part II deals with plasma and volume expanders, particularly with such agents as dextran, polyvinylpyrolidine, despeciated protein prepared from horse serum, etc. Studies on dogs suggest that plasmoid gelatin is a better agent for the restoration of plasma volume than dextran. Part III deals with the cold sterilization of plasma and volume expanders.

—J. A. NICHOLSON.

WELT, L. G. & PETERS, J. P. (1951). **Acute renal failure. Lower nephron nephrosis.**—*Yale J. Biol. Med.* **24**, 220-230. **1646**

In lower nephron nephrosis (necrosis of the epithelium of the uriniferous tubules of the renal cortex) any part of the tubule may be affected, but the injury usually occurs and is most severe in the lower part of the nephron. Causes include poisoning by sulphonamides, carbon tetrachloride, mercury salts and other agents; injuries which cause massive tissue destruction, *e.g.* crushing and burns; haemolytic crises due to infections or transfusion reactions; or possibly prolonged peripheral circulatory collapse. As the brunt of the attack is borne by the tubule epithelium, the damage is reparable, provided the patient lives long enough. Clinical signs are oliguria or anuria. The authors suggested that the tubule epithelium, injured and no longer capable of selective resorption, allows all or most of the glomerular filtrate to pass back into the body fluids. Pathogenesis appears to depend mainly on (a) some agent toxic for the renal tubule epithelium; (b) anoxia of the renal tissue. Increased resorption of water from the damaged tubule may concentrate there the toxic agent in the urine, increasing the epithelial injury. Adequate and controlled hydration is therefore an essential part of treatment and, where surgical interference is planned, of prevention.

—L. M. MARKSON.

See also absts. **1723** (report, Basutoland); **1724** (report, Somaliland); **1725** (report, U.S.A.).

POISONS AND POISONING

SCHEIDY, S. F., WILCOX, P. W. & CREAMER, A. A. (1953). **Residual arsenic in swine tissues following oral administration.**—*J. Amer. vet. med. Ass.* **123**, 341-342. [Abst. from authors' summary.] **1647**

Phthalysulphathiazole at 2 g. and arsenic, 52 mg., per 30 lb. of body weight, and also at twice this amount were given orally once daily for 7 days to young, healthy store pigs and were well tolerated. Tissue concentrations of arsenic in samples of blood, fat, muscle, stomach, small and large intestines, liver, kidney, skin, pancreas, bone, bile, heart, bristles, spleen, and feet varied from 0·01 to 5·3 p.p.m., the highest concentrations being found in bristles, liver, bile, kidney, and feet.

MÜLLER, R. (1952). Das klinische Bild der Thalliumvergiftung beim Hunde an Hand von 15 experimentell durchgeführten Vergiftungen. **[Experimental thallium poisoning in dogs].**—*Inaug. Diss., Munich.* pp. 28. **1648**

A description of the symptoms of thallium poisoning in 15 experimentally poisoned dogs, and of the P.M. findings in 8 of these cases. Nervous symptoms were not a feature and the nervous system was not studied histologically.

—F. R. HARRIS.

MCGIRR, J. L. (1953). **Poisoning of livestock by the newer rodenticides, insecticides and weed killers.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1**, Pt. 1. 479-484. [In English. French and German summaries.] **1649**

A report of work carried out at Weybridge to acquire data on the toxicity to domestic animals of red squill, zinc phosphide, ANTU (alpha-naphthylthiourea), organo-phosphorus

insecticides, and certain hormone weed-killers, giving details of toxic symptoms, lesions found P.M., and the toxic doses for various animals.
—A.S.

BERG, R. T. & MCELROY, L. W. (1953). **Effect of 2,4-D on the nitrate content of forage crops and weeds.**—*Canad. J. agric. Sci.* **33**, 354-358. **1650**

No increase in nitrate content was found in forage plants that had been treated with the hormone weed-killer, 2, 4-dichlorophenoxyacetic acid (" 2, 4-D "), as compared with untreated forage plants, but there was a significant increase in the nitrate content of treated weeds.
—THOMAS MOORE.

BELLUE, M. K. (1952). **Nitrate accumulation in toxic quantity discovered in California weeds.** —*Bull. Calif. Dep. Agric.* **41**, 103. **1651**

Potassium nitrate accumulation well in excess of the minimum toxic limit was detected in luxuriant growth of weeds, apparently associated with limestone-bearing soils with a high moisture retention, with excessive shade, and possibly with the use of " 2,4-D " [the hormone weed-killer, 2,4-dichlorophenoxyacetic acid].
—N. DEAN.

BENTLEY, H. R., MCDERMOTT, E. E. & WHITEHEAD, J. K. (1951). **Action of nitrogen trichloride on certain proteins. II. Synthesis of methionine sulphoximine and other sulphoximines.**—*Proc. roy. Soc.* Ser. B. **138**, 265-272. **1652**

Methionine sulphoximine, synthesized by the action of hydrazoic acid on methionine sulphoxide in the presence of concentrated sulphuric acid was shown to be identical with the toxic factor isolated from proteins treated with agene (nitrogen trichloride). S-methylcysteine sulphoximine and dimethyl sulphoximine are prepared from the corresponding sulphoxides by a similar method.—CHARLOTTE M. WOOD.

WAGENER, K. (1953). Die Hyperkeratose des Rindes (X-Disease), eine Vergiftung durch Industrie - Produkte. **[Hyperkeratosis, a poisoning by industrial products.]**—*Proc. XVth Int. vet. Congr. Stockholm.* **1953. 1**, Pt. 1. 512-517. [In German. English and French summaries.] **1653**

A general account of hyperkeratosis in cattle with details of the author's own contributions [*V.B.* **22**, 519, 3164 and 3503].—A.S.

LOOSMORE, R. M. (1953). **Hyperkeratosis in the bovine.**—*Vet. Rec.* **65**, 908-912. **1654**

An account of hyperkeratosis in two calves and four adult cattle in a dairy herd where losses had occurred two years earlier, following the conversion of an old cow byre into rearing accommodation for calves. A tar-creosote compound [no details given] had been thickly applied to all woodwork which had then been coated with layers of lime-wash. L. described the symptoms and the lesions, with reproductions of photographs and a photomicrograph. Typical symptoms and lesions were set up in 2 healthy calves by painting parts of the skin with the tar-creosote compound used on the farm.
—F.E.W.

BOTTARELLI, A. (1951). Grave forma di intossicazione da sabbie petrolifere in un allevamento suino. **[Poisoning of pigs by oil-bearing sand from an oil well.]**—*Atti Soc. ital. Sci. vet.* **5**, 208-212. [French summary.] **1655**

Six pigs in the neighbourhood of a burning oil well died within 28 days of ingesting the fuel oil-bearing sand dispersed over the area. It was estimated that the animals ate about 32 g. a day. In addition to mechanical irritation, the symptoms described were those of acute toxicity and bone malformation; these were attributed to the presence of saponins produced at the high temperature.—K. J. SINCLAIR.

GARDNER, C. A. & BENNETTS, H. W. (1952). **Poison plants of Western Australia. I. Pituri (*Duboisia Hopwoodii* [F. Muell.] F. Muell.)** —*J. Dept. Agric. W. Aust.* 3rd. ser. 1, 53-56. **1656**

Pituri (*D. Hopwoodii*), a shrub containing the alkaloids, d-nor-nicotine and nicotine, is widely distributed in Western Australia, being found in the dry interior and in the marginal wheat-growing country. The leaves are toxic to horses, cattle, goats, sheep and camels. Symptoms of poisoning by the plant in sheep are:—dulness, trembling, and muscular weakness, incoordinated gait and collapse. Some abdominal pain may be evident. Death is rapid and usually occurs quietly. An intense enteritis is the only P.M. sign.—B. A. FORSYTH.

KRAHNERT, R. & KUPKY, M. (1953). Vergiftung durch Taumelkerbel (*Chaerophyllum temulum*) beim Sumpfbiber. **[Chervil (*C. temulum*) poisoning in nutria.]**—*Mh. VetMed.* **8**, 9-12. **1657**

Five adult nutria and 6 young ones on a small farm were fed green leaves of chervil by their owner as a morning meal. Three of the adults which ate only small quantities of the herb developed diarrhoea and nervous symptoms; five of the young, which had eaten it greedily, died. P.M. examination revealed no

macroscopic signs of inflammation in the digestive tract, but the liver had a " marbled " appearance.

Histological examination revealed a moderate fatty degeneration, incipient dissociation and paling of the nuclei of the liver cells, particularly in the central lobe, a marked dilatation of the vessels and, in parts, small haemorrhages.—H. BEHRENS.

JONES, E. B. (1953). **Ergot poisoning in young cattle. I.**—*Vet. Rec.* **65**, 156-158. **1658**

EDWARDS, C. M. (1953). **Ergot poisoning in young cattle. II.**—*Ibid.* 158-159. [Abst. from authors' summary.] **1659**

I. & II. The authors described an outbreak of ergot poisoning in yearling cattle, and discussed the infestation by ergot of the grasses of the pastures.

ENZIE, F. D. & WHITMORE, G. E. (1953). **Photosensitization keratitis in young goats following treatment with phenothiazine.**—*J. Amer. vet. med. Ass.* **123**, 237-238. **1660**

Sixty full-grown goats and 28 kids between 3 and 10 weeks of age were treated in April in Maryland, U.S.A., with phenothiazine in dosage of 25 and 12 g. respectively. The adults were turned out to pasture immediately afterwards and they suffered no ill-effects. The kids were kept in on the day of treatment and turned out 18 hours after dosage. Photosensitization keratitis developed in 15 of them. They were rehoused and all recovered within a week.—J. EDWARDS.

GRETILLAT, E. H. (1953). Observations sur les accidents toxiques survenus à la suite du traitement de la trypanosomiase bovine par le bromure de dimidium dans quelques troupeaux du Kwango. [**Poisoning following treatment of bovine trypanosomiasis with dimidium bromide.**]—*Bull. Agric. Congo. belge.* **44**, 797-812. [Flemish summary.] **1661**

G. recorded observations on the occurrence of toxic symptoms, with some deaths, in cattle in the Western Belgian Congo following treatment with dimidium bromide. Three different clinical pictures were noted (1) photosensitization, (2) digestive disturbances, and (3) nervous symptoms respectively predominating, and the lesions also varying in the three types. Poisoning occurred only when cattle were treated at the end of the rainy season (February-March). Pastures are poor in this area and at the end of the rains the herbage is woody, rich in cellulose and poor in digestible elements. G. suggested that a dietary protein deficiency, associated in certain individuals with hepatic insufficiency, may play a role.—J.D.

MURA, D., QUESADA, A. & MEDDA, A. (1953). Contributo allo studio della presunta tossicità per gli animali domestici del DDT-naftatryton impiegato dall'ERLAAS [Ente Regionale Lotta Antianofelica Sardegna] per la campagna anti-malarica in Sardegna. [**Toxicity for domestic animals of D.D.T. in kerosene with " tryton " (a non-ionic detergent) used in the anti-malaria campaign in Sardinia.**]—*Clin. Vet., Milano.* **76**, 36-52. [English and French summaries.] **1662**

In the course of large-scale malaria control in Sardinia by means of D.D.T. suspended in kerosene with " tryton " (a non-ionic detergent) considerable illness, with some deaths, occurred among cattle, sheep and goats in the treated areas. In toxicity tests on 1,024 animals using separately various concentrations of each of the components of the spray that had been used, all the animals remained healthy. P.M. examination of animals that had died revealed that the illness had been due to severe parasitic infestation, not to the spray.—F. R. HARRIS.

PETRELIUS, T. (1953). **Poisoning of ruminants through the inhalation of mercury vapour from horses treated with mercury ointment.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953 **1**, Pt. 1. 506-512. [In English. French and German summaries.] **1663**

Following the application of 200–400 g. ointment of mercury (containing 30% Hg) to the legs of horses for from 3–5 consecutive days, P. demonstrated an appreciable concentration of Hg vapour in the air of the stable. A cow, calves, and sheep placed in stalls adjacent to, but not in direct contact with, treated horses rapidly developed symptoms of Hg poisoning, which was verified at P.M. examination.—R.M.

See also absts. **1598** (photosensitization); **1601** (rye-grass staggers, rape poisoning, beet top poisoning, selenium poisoning); **1723** (report, Basutoland).

PHARMACOLOGY AND GENERAL THERAPEUTICS

(For treatment of specific infections see under the appropriate disease)

SCHEIDY, S. F. & BUNN, C. E. E. (1953). **Veterinary application of antibiotics and other modern therapeutic substances.**—*Vet. Rec.* **65**, 779-789. Discussion: pp. 790-795. **1664**

Scheidy discussed the use of various sul-

phonamides and antibiotics in bacterial infections of cattle, with particular reference to sulphafurazole, penicillin and penicillin in oily suspension. He described developments in the use of oestradiol cyclopentylate, the gonadotrophins, cortisone and A.C.T.H. and mentioned the application of certain enzyme products to wounds. He gave details of new anaesthetics (methadone and hexylcaine hydrochloride), colloidal silver oxide, silicones and plasma expanders.—J. M. LEACH.

FURTH, F. W., COULTER, M. P., MILLER, R. W., HOWLAND, J. W. & SWISHER, S. N. (1953). **The treatment of the acute radiation syndrome in dogs with aureomycin and whole blood.**—*J. Lab. clin. Med.* **41,** 918-928. **1665**

Radiation sickness is characterized by haemorrhage and secondary infection. An attempt to prevent these effects by the preliminary administration of aureomycin and stored whole blood failed in dogs exposed to irradiation corresponding to LD_{88} or LD_{62} of total body X-irradiation.—J. EDWARDS.

BEHRENDT, W. A. (1952/53). Klinische und hämatologische Untersuchungen über den Mistelextrakt " Plenosol " unter besonderer Berücksichtigung der Therapie der deformierenden Arthrosen des Pferdes. [**Treatment of arthritis in horses with a proprietary extract from mistletoe (*Viscum album*) leaves.**]—*Wiss. Z. Humboldt-Univ.* **2,** Nos. 3/4. pp. 133-160. **1666**

B. treated 16 cases of osteoarthritis in horses with " plenosol "—an extract of the leaves of mistletoe, which has been used in human arthritis. It was administered by s/c injection around inflamed joints in the horses and the lesions were cured in 9 of the horses and improved in 5—a result which was regarded as favourable.

The article also contains a review with an extensive bibliography on bone and joint disease in horses and a summary of other methods of treatment.—J. EDWARDS.

HARTHOORN, A. M. (1952). **The therapy of shock in the dog. An experimental study.**—*Thesis, Utrecht.* pp. 207. [In English.] **1667**

Shock was induced experimentally in dogs under nembutal anaesthesia by means of cooling the peritoneum, by repeated bleeding, or by manipulation of the intestine; these methods appeared to produce their effects by nervous agency, by oligaemia, and by loss of blood plasma respectively. The criteria of established shock were taken to be haemoconcentration, a progressively diminishing blood volume, and a maintained fall of blood pressure to " shock level ". The treatment of shock so produced was attempted by infusing into the blood stream normal saline, gelatin solution, protein hydrolysate, homologous and heterologous plasma, or purified bovine albumin solution, attention being given particularly to methods which would be practicable under veterinary clinical conditions.

It was found that while infusion of saline alone was contra-indicated in the treatment of shock, it was, when given by tube into the gastro-intestinal tract, a valuable adjunct to the i/v infusion of an efficient colloidal solution capable of maintaining the circulation. For the latter purpose, small intermittent i/v injections of concentrated solns. of heterologous (bovine) albumin, free from globulin, were found to be safe and efficient.

H. discussed the rationale of the experiments and of the suggested therapeutic measures and gave a useful critical review of the literature.—E. COTCHIN.

COMBEN, N. (1953). **Monkey glands for cats. The treatment of miliary eczema in the cat by the subcutaneous implantation of testosterone.**—*Vet. Rec.* **65,** 877-879. **1668**

Subcutaneous implantation of 25 mg. of testosterone gave 36 successes and 3 failures in castrated male cats affected with miliary eczema. Improvement was noticeable in 2 weeks. From the second to fifth weeks a libido developed in some of the cats. The majority of cases required re-treatment in 6–12 months. The treatment does not remove the necessity of improving the diet and eliminating ectoparasites.

—A. SEAMAN.

MACARTHUR, J. G. & ALSTEAD, S. (1953). **Counter-irritants. A method of assessing their effect.**—*Lancet.* **265,** 1060-1062. **1669**

The authors described a simple experimental method for assessing the effects of counter-irritants, especially of nicotinic acid esters, in the relief of pain, the standard pain used being that produced by intramuscular injection of hypertonic saline solution. Application of 3% volatile oil of mustard in simple ointment to the skin over the painful area causes severe local irritation and effectively relieves the deep muscular pain caused by the saline injection. Application of 5% tetrahydrofurfuryl nicotinic acid caused intense flushing of the skin, but failed to relieve the pain.—W. R. BETT.

BARCHFELD, W. P. (1953). **Intraarterial transfusion.**—*J. Amer. vet. med. Ass.* **123**, 103-104. **1670**

B. described the technique of intra-arterial transfusion in the dog using a branch (*e.g.* saphenous) of the femoral artery. More rapid results are obtained than with intravenous transfusion, but the artery is sacrificed by the ligation necessary after the operation.

—C. A. E. BRIGGS.

See also absts. **1372-1373** (action of surface-active agents on growth of tubercle bacilli); **1375** (*iso*-nicotinic acid hydrazide); **1379** (cortisone); **1398** (disinfection of eggs infected with *S. pullorum*); **1406-1407** (brucellosis); **1435-1437** (antibiotics); **1446-1447** (trypanosomiasis); **1460** (sulphonamides); **1464** (paludrine lactate); **1540-1546** (insecticides); **1565** (phenothiazine); **1573** (nitrofurazone); **1580** (antibiotics in nutrition); **1608-1609** (ketosis); **1611-1612** (A.C.T.H.); **1661** (dimidium bromide); **1662** (D.D.T.).

PHYSIOLOGY, ANATOMY AND BIOCHEMISTRY

GROSS, J. & PITT-RIVERS, R. (1952). **Experimental study of thyroid metabolism with radioactive iodine.**—*Brit. med. Bull.* **8**, 136-141. **1671**

Thyroxine circulates in the blood in combination with a specific plasma fraction. Metabolism produces iodide, and 12 unidentified organic I compounds (one of which is perhaps triiodothyronine). Iodide is found in gastric secretion and is excreted in urine and faeces, very little being re-utilized.—F. R. HARRIS.

DUCKWORTH, J. & RATTRAY, G. B. (1948). **The three-quarter-bred Holstein-Zebu heifer. Pt. I. Blood changes during the first year of life.** —*Emp. J. exp. Agric.* **16**, 14-22. **1672**

Weekly blood samples were taken from 18 Holstein-zebu calves up to the age of six months, and then at fortnightly intervals, and the changes in red-cell and white-cell count, haemoglobin and packed-cell volume of the blood recorded. The authors gave details of techniques used and compared the results with data on the haematology of *Bos taurus* and *B. indicus* available in the literature.

The erythrocyte count increased slightly from 8·4–9 million per ml. during the first four months of life. From the fourth to the eighth months it declined slightly up to the twelfth month. The white cell count was steady at 10,400 for the first two months, increased during the third month, and was then 13,500–14,800 per ml. The haemoglobin roughly paralleled the erythrocyte count, finishing at 9·0 g. per 100 ml. The packed cell volume ranged from 30·9–27·6%, the highest values occurring during the first four months. The erythrocyte count of both young and adult zebu cattle was higher than in *B. taurus*, and while in the latter the first year covered the transition from the high values of young calves to low values of adults, this transition was of longer duration in *B. indicus*. The leucocyte count was higher in zebus of all ages, the values in calves being higher in both species.

The three-quarter-bred Holstein-zebu calf differed from its parents in that the haemoglobin concentration was much lower. The mean erythrocyte corpuscular volume and corpuscular haemoglobin were much lower than in English cattle. The gradual increase in leucocyte count during the first 12 months was diametrically opposite to the falling count in temperate zone cattle.—W. S. MARSHALL.

ALBRITTON, E. C. [Edited by.] (1952). **Standard values in blood.** pp. x + 199. Philadelphia & London: W. B. Saunders Co. 22s. 6d. **1673**

This book contains 101 tables. The range is indicated by the following summary of the contents:—Physical properties (7 tables), Coagulation phenomena (16 tables), Blood groups (13 tables), Erythrocytes and haemoglobin (12 tables), Leucocytes (7 tables), Blood and bone marrow cells (11 tables), Chemical constituents, organic and inorganic (26 tables), Vitamins, hormones and enzymes (4 tables), Effects of radiation and storage (3 tables), Therapeutic agents (1 table).

Some thirty-six of these tables contain data of direct interest to workers in veterinary fields, whilst many of the others contain information that can be applied to veterinary matters.

The figures given are those of a representative value (universal mean) and the estimated upper and lower limits of the 95% range.

The majority of the tables deal with human values; many values for farm animals are recorded, but there are some surprising lacunae in this section.

No table of erythrocyte counts in farm animals can be found, although counts of some 24 species of fish are included. In table 45 recording the erythrocyte diameters of some 116 mammals from anteater to wombat, there is no figure for the pig. In table 92, "Blood electrolytes," no figures for calcium or phosphate values are recorded for any farm animal. In table 93, "Minor blood elements," a similar situation arises with copper (in sheep), fluorine and lead.

It appears that the authors of these tables are not fully conversant with the literature on

these subjects that has been published in the British Commonwealth.

The design of its comprehensive bibliography is excellent.

The bibliography is given in a special section under the headings and numbers corresponding to the various tables and references can easily be found by the use of a method of identification comparable to that used in geographical atlases.

This publication when suitably revised will be a *sine qua non* for veterinary teaching, advisory and research establishments. In its present form whilst providing much useful information it must, of necessity, have a limited appeal.—J. A. J. VENN.

FANTL, P. & HAYES, R. A. (1953). **Formation of thromboplastin in shed mammalian blood.** [Correspondence.]—*Nature, Lond.* **172**, 303-304. **1674**

It was observed that a considerable acceleration of the clotting time occurred in citrated human blood if the cellular elements were removed before re-establishment of the calcium ion concentration. A study of this effect suggests that normal plasma contains a soluble precursor of the thromboplastin complex which becomes activated in contact with glass. This is the first step in the clotting process and occurs before the breakdown of platelets.

—J. A. NICHOLSON.

GRAFFLIN, A. L. & BAGLEY, E. H. (1953). **Studies on peripheral blood vascular beds.**—*Johns Hopk. Hosp. Bull.* **92**, 47-73. **1675**

Studies *in vivo* on the web and urinary-bladder wall in the frog, and on the bulbar conjunctiva in man, revealed irregularly dichotomous capillary beds, having, in the frog, arterio-venous communications.

The concept of Chambers and Zweifach of the peripheral vascular bed as a " composite of functioning units, each unit consisting of a central capillary-like channel of which the true capillaries are side branches ", did not seem to be applicable to the three locations studied by the authors.—W. R. BETT.

ROMAGNOLI, A. (1953). **A comparative study of blood pressure measurements in dogs.**—*Cornell Vet.* **43**, 161-174. **1676**

Blood pressure measurements were made on 22 anaesthetized dogs. Direct readings were obtained from the femoral artery using a capacitance diaphragm manometer. These were compared with indirect readings obtained by the oscillatory and auscultatory methods. Direct readings showed that the systolic pressures ranged from 197·5 mm. Hg to 108·4 mm. Hg with a mean of 155·7 mm. Hg; the diastolic pressures ranged from 120 to 75 mm. Hg with a mean of 99·6 mm. Hg and the pulse pressures ranged from 97 to 29·2 mm. Hg with a mean of 56·1 mm. Hg. In most cases the indirect methods gave lower systolic readings, higher diastolic readings and lower pulse pressures than the direct method.—J. A. NICHOLSON.

MCCUBBIN, J. W. & CORCORAN, A. C. (1953). **Arterial pressures in street dogs : incidence and significance of hypertension.**—*Proc. Soc. exp. Biol., N.Y.* **84**, 130-131. **1677**

Measurement of arterial pressure in 400 adult street dogs, selected at random, revealed that while hypertension resembling " clinical essential " hypertension possibly occurs in dogs it is apparently very rare, what appeared to be " spontaneous " hypertension being usually attributable to renal disease. In 319 of these dogs the arterial pressure was in the range of 111–140 mm. Hg; 53 ranged from 141–150 and 19 ranged from 100–110. Only 9 having a pressure over 150, could be considered hypertensive; of these 7 ranged from 151–156 at the first determination and fell to a lower level on repeated testing; the two with considerable hypertension, 175 and 205 mm. Hg respectively, were found on P.M. examination to have renal lesions.—F.E.W.

SWISHER, S. N., IZZO, M. J. & YOUNG, L. E. (1953). **Post-transfusion survival of fresh and stored dog erythrocytes measured by differential agglutination.**—*J. Lab. clin. Med.* **41**, 946-952. **1678**

Fresh transfused r.b.c. survived for 100–114 days in dogs. Dog blood stored at 40°C. in acid-citrate-glucose preservative solution for periods up to 15 days survived for approx. 80 days when transfused into normal recipients.

—D. POYNTER.

VAUGHN, J. (1953). **The function of the eosinophile leukocyte.**—*Blood.* **8**, 1-15. [Author's summary modified.] **1679**

Eosinophilia was produced experimentally in g. pigs by the injection of extracts of *Ascaris lumbricoides* and histamine, the accompanying histological changes, particularly the distribution of eosinophiles, being noted. The tissues of g. pigs with a natural eosinophilia were also studied.

After leaving the bone marrow the eosinophile appears to travel in the blood stream to the lungs or intestine where, leaving the blood vessel, it passes to the mucosa of the bronchi

or intestine. At this point, in the lungs at least, it either passes into the lumen of a bronchus and is eliminated from the body, or it may be caught up in the lymphatic system, later to re-enter the blood stream, eventually being destroyed by the spleen.

The author suggested that the function of the eosinophile is to remove histamine or a histamine-like toxic material for inactivation. He discussed these findings in relation to the occurrence in man of eosinophilia and eosinophilic infiltration of the lungs.

HORWITZ, S. A., SPANIER, M. R. & WIGGERS, H. C. (1953). **The electrocardiogram of the normal dog.**—*Proc. Soc. exp. Biol., N.Y.* **84,** 121-125. [Authors' summary modified.] **1680**

The authors gave a table of values for the E.C.G. of the average healthy laboratory dog, trained, unanaesthetized, and in the supine position, based on data from 62 tracings on 30 dogs. Data obtained from 10 serial tracings on each of 3 dogs indicated a variation within the same animal not significantly different from that obtaining among different animals. The authors suggested that to establish the normal E.C.G. of a dog, a mean of 3 tracings taken at different times should be used to reduce the effect of the occasional extreme of data recorded.

BARONE, R. & SCHAFER, H. (1953). L'irrigation artérielle de l'encéphale chez les équidés domestiques. **[Arteries of the brain of the horse.]**—*Bull. Soc. Sci. vét. Lyon.* **54-55,** 55-82. **1681**

The authors examined the blood supply to the brain of over forty horses. They gave a very detailed description of the ramification of the branches given off from the circle of Willis and the basilar trunk.—R. N. SMITH.

DANIEL, P. M., DAWES, J. D. K. & PRICHARD, M. M. L. (1953). **Studies of the carotid rete and its associated arteries.**—*Phil. Trans.* Ser. B. **237,** 173-208. **1682**

The authors examined the carotid rete of cats, sheep, goats, cattle, pigs, dogs, rabbits and rats by contrast radiography and by cast formation with neoprene latex. They described the saccular structure in each species.

—JOHN SEAMER.

EGER, W. & OTTENSMEIER, H. (1952). Die Glykogendarstellung und Glykogenablagerung in der Leber, untersucht mit dem nativen Gefrierschnittverfahren. **[Demonstration of glycogen storage in the liver by the unstained frozen section method.]**—*Virchows Arch.* **322,** 175-186. **1683**

For the investigation of glycogen deposits in the liver the authors recommended the unstained frozen section method, using fresh material and the staining technique described by Bauer.—H. BEHRENS.

HART, P. C. (1953). Onderzoek naar het mangaangehalte van runderlevers. **[Manganese content of the bovine liver.]**—*Tijdschr. Diergeneesk.* **78,** 929-940. [English, French and German summaries.] **1684**

Thirty-one cows were treated with methylthiouracil; 31 controls were fattened on the same rations but without this addition. The average manganese content per g. of liver was 8·44 μg. in treated cows as compared with 10·90 μg. in controls. The total weight of the liver was greater in treated cows than in the controls; therefore the total manganese content of the liver was greater in the treated ones.

—C. A. VAN DORSSEN.

DE MUYLDER, C. G. (1952). **The "neurility" of the kidney : a monograph on nerve supply to the kidney.** pp. xiv + 80. Oxford: Blackwell Scientific Publications; Springfield, Ill.: Charles C. Thomas; Toronto: The Ryerson Press. $5 or 25s. **1685**

In this monograph the nerve supply to the human kidney is described in detail with special reference to the intra-renal nerves and the juxtaglomerular apparatus. Using Cajal's reduced silver impregnation method, the development and course of the nerve fibres have been studied from the early embryonic to the adult stages and the findings illustrated by means of 46 extremely clear photomicrographs and drawings. Reference is made to the comparative anatomy of some of the lower vertebrates and it is also pointed out that the mammalian kidney is very similar in all species. Finally the possible relationship between nervous elements and some aspects of renal pathology is considered. This monograph embodies the results of some 14 years' study of the nerve supply to the kidney and will be found of great value to all those who require a detailed account of the subject.

—J. A. NICHOLSON.

PREUSS, F. (1953). Glukagonzellen der Bauchspeicheldrüse bei Mensch und Tier. **[A-cells in the islets of Langerhans in man and animals.]**—*Mh. VetMed.* **8,** 300-304. **1686**

P. discussed the significance of the A-cells in the islets of Langerhans and suggested that diabetes mellitus will follow if there is a disturbance in the ratio between the A and B cells,

which is normally 1:4. He described three types of A-cells.—J. A. NICHOLSON.

MAXIMOW, A. A. [Late Professor of Anatomy, University of Chicago.] & BLOOM, W. [Professor of Anatomy, University of Chicago.] (1952). **A textbook of histology.** pp. x+616. Philadelphia & London: W. B. Saunders Company, Ltd. 6th Edit. 50s. **1687**

It was with much pleasure that one welcomed yet another edition of this fine textbook. Alterations have been extensive, but the book retains its original basic plan, its original format and its original point of view. In matters of detail, however, full use has been made of new techniques such as phase contrast and electron microscopy and modern histochemical methods.

Although the chapter on the nervous system has been revised, it remains in essence a microanatomical account of the component tissues, not of the component organs.

The illustrations are, without exception, excellent, many of them indeed being quite outstanding. The colour blocks have reproduced most clearly and vividly.—L. M. MARKSON.

LAROSE, P. & FISCHER, R. (1953). Über die Affinität quaternärer Ammoniumbasen zu Wolle und zu Bakterien. **[Affinity of quaternary ammonium compounds for wool and bacteria.]**—*Schweiz. Z. allg. Path.* **16,** 97-105. [In German. English and French summaries. Abst. from English summary.] **1688**

The authors found that the similarity in behaviour previously found to exist between Gram-negative bacteria and intact wool on the one hand, and between Gram-positive bacteria and wool degraded for 3–4 hours with sodium carbonate on the other, occurs also with Gram-variable bacteria and wool degraded for 15 min. to 3 hours.

They measured the affinity of " bradosol " (a quaternary ammonium compound) for wool and the stages of its degradation and related these to the bactericidal activity of the compound against a number of Gram-negative, Gram-variable and Gram-positive bacteria respectively.

PETHICA, B. A. & SCHULMAN, J. H. (1953). **The physical chemistry of haemolysis by surface-active agents.**—*Biochem. J.* **53,** 177-185. **1689**

Investigation of haemolysis of r.b.c. by certain reagents indicates that lysis is dependent upon production of interfacial tension corresponding to 34 dynes/cm. at an air water surface. Penetration of the cholesterol monolayer by ionic detergents and lowering of tension by non-ionic solutions depends upon concentration.

—JOHN SEAMER.

See also absts. **1730-1731** (books, anatomy).

PUBLIC HEALTH, VETERINARY SERVICES AND VETERINARY EDUCATION

PIGOURY, L. (1951). Le laboratoire mobile du Service Vétérinaire de l'Armée. **[A mobile laboratory of the Army Veterinary Services.]** —*Rev. Vét. Milit., Paris.* **6,** 1-9. **1690**

P. described a complete, self-contained mobile laboratory used in the French Army. It consists of a motor lorry with an electrical unit and a two-wheeled laboratory on tow. It can be adapted for routine investigation on bacteriology, parasitology, histology, chemistry or biology. While in peace time it can be used for research, in war time it would be useful as a base for the veterinary service in the field and might play a significant role in public health work.—D. S. RABAGLIATI.

NOORDIJK, E. (1951). De veterinair-hygienische-dienst der gemeente Texel. **[The veterinary service in the island of Texel.]**—*Tijdschr. Diergeneesk.* **76,** 321-334. **1691**

The municipal veterinary service in the island of Texel is responsible not only for meat and market inspection, but also for the supervision of milk hygiene, and the inspection of herds and of farm buildings.

—C. A. VAN DORSSEN.

KAŁYPOW, I. (1953). Służba weterynaryjna w Bułgarskiej Republice Ludowej. **[Veterinary services in Bulgaria.]**—*Méd. vét., Varsovie.* **9,** 86-87. [In Polish.] **1692**

A note giving an outline of the government veterinary services in Bulgaria. Little detail is given, most of the article consisting of statements to the effect that the service is so effective that there is little disease. Reference is made to the spread of disease from other Eastern Mediterranean countries.—J. R. MITCHELL.

OTTOSEN, H. E. (1953). Med F.A.O. i Aethiopien. **[The F.A.O. veterinary mission in Ethiopia.]** — *Medlemsbl. danske Dyrlaegeforen.* **36,** 147-155, 167-170, & 183-190. **1693**

A general unofficial account of life and work in Ethiopia under the FAO veterinary mission. Vaccination of the cattle population

—some 10–20 million—against rinderpest is the major task. It is compulsory and in spite of opposition at the outset the work is now proceeding well. Goat virus vaccine is used except for imported European and cross-bred zebu cattle, for which lapinized vaccine is used. The vaccine is prepared in Addis Ababa at the Imperial Veterinary Laboratory.—F.E.W.

BLACK, J., LYNCH, J. M. & LADIMER, I. (1953). **A program for protection of research employees against pathogenic hazards.**—*Publ. Hlth Rep., Wash.* **68**, 989-992. **1694**

In the National Institutes of Health of the U.S. Public Health Service, a Safety Officer is responsible with a Safety Engineer, a Radiological Safety Officer, and the Medical Officer of the employees health service for integrating a safety health programme to promote hazard consciousness amongst the employees and for the maintenance of a safe working environment. The authors described some of the safe operating techniques and periodic medical examinations required.—A. ACKROYD.

See also absts. **1365** (tubercle bacilli in milk); **1398** (disinfection of eggs infected with *S. pullorum*); **1399** (*S. gallinarum* in eggs).

LIVESTOCK HYGIENE

SOUTAR, D. S. (1953). **Pig housing in relation to health and economy.**—*Vet. Rec.* **65**, 722-736. Discussion: pp. 736 to 740. **1695**

For economic pig production optimum environmental conditions must be provided. A dry bed in warm surroundings with ample fresh air and separate areas for defaecation are essential. Isolation is considered essential in the housing of sows and litters.

Recommendations for the construction of piggeries supplying these optimal conditions for growing pigs and farrowing sows are described in some detail. Such buildings must also be constructed economically and allow of minimum labour requirements.

—L. C. VAUGHAN.

REPRODUCTION AND REPRODUCTIVE DISORDERS

I. SALISBURY, G. W., BRATTON, R. W. & FOOTE, R. H. (1952). **The effect of time and other factors on the non-return to service estimate of fertility level in artificial insemination of cattle.**—*J. Dairy Sci.* **35**, 256-260. **1696**

II. FOOTE, R. H. & BRATTON, R. W. (1952). **The influence of antibiotics on delayed returns in artificial breeding.**—*Ibid.* 261-265. **1697**

I. In order to determine the major factors contributing to error in the method of estimating the fertility of bulls by the " non-returns " data, the authors examined data on some 250,000 cows artificially inseminated by the intra-uterine technique between 1943 and 1947. It was found that the magnitude of the difference between one-month and 5-month non-returns decreased (1) as experience with A.I. advanced (the reason not being apparent), and (2) with the age of the semen used. The addition of sulphanilamide to the semen had tended to reduce the difference, but had not eliminated it.

II. Study of data on " non-returns " before and after the inception of routine addition of 500 U. each of penicillin and streptomycin per ml. of semen, revealed an immediate and sustained increase in the percentage of non-returns and a precipitous decrease in delayed returns following the change in routine, the difference between the 28- to 35-day and the 60- to 90-day non-returns for 345,666 first-service cows being reduced by 5·5% and between the 60- to 90-day and the 150- to 180-day non-returns by 0·5%. A similar pattern was found in the data for 95,570 second-service and for 38,511 third-service cows. The change was attributed to reduction of embryonic mortality through inhibition of infective organisms.

—F.E.W.

BYERS, J. H. (1953). **The influence of testes biopsy on semen quality.**—*J. Dairy Sci.* **36**, 1161-1171. **1698**

The authors performed biopsy on one or both testicles in 10 unanaesthetized bulls aged from 8 months to 3 years. There was no marked diminution in the quality of semen collected 2 days after the operation, except in one bull, which became completely sterile as a result of necrosis of both testicles following bilateral biopsy.—R.M.

LIKAR, I., KOLARIĆ, J. & UKROPINA, V. (1953). Die qualitative Spektralanalyse der Hengstejakulate. **[Qualitative spectrum analysis of semen of horses.]**—*Wien. tierärztl. Mschr.* **40**, 220-226. [English, French and Italian summaries.] **1699**

By qualitative spectrum analysis of the seminal fluid of horses it was possible to detect

the presence of potassium, sodium, calcium and magnesium representing the alkali metal and alkaline earth group, while iron, aluminium and copper were also found.—R. MARSHALL.

MANN, T. & LEONE, E. (1953). **Studies on the metabolism of semen. VIII. Ergothioneine as a normal constituent of boar seminal plasma. Purification and crystallization. Site of formation and function.**—*Biochem. J.* **53**, 140-148. **1700**

The authors described methods of identifying and isolating ergothioneine from the vesicular secretion of boars. This substance is produced exclusively in the seminal vesicles, occurs in their secretion in an average concentration of 79 mg./100 ml., accounts for the major part of the total reducing material and is unaccompanied by thiolhistidine. Its role, which has not yet been fully investigated, consists chiefly of protecting spermatozoa against sulphydryl inhibitors and appears to be linked with certain peculiarities of semen production in this species. —G. P. MARSHALL.

SEEKLES, L., HOLTZ, A. H. & EIKELENBOOM, C. (1953). **A preliminary report on the excretion of 17-ketosteroids originating from the gonads and from the adrenal cortex in cattle and horses.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. **1**, Pt. 1. 588-595. [In English. French and German summaries.] **1701**

The authors extracted 17-ketosteroids from the urine of cattle and horses, and separated them into 8 different fractions, each of which was estimated quantitatively by a colorimetric method. Five of these fractions consisted of ketosteroids from the adrenal cortex and 2 were from the ovaries or testicles. The ratio of adrenal cortex ketosteroids to gonad ketosteroids was constant in normal fertile animals, and was the same in both sexes. Abnormal ratios occurred in old or infertile animals, *e.g.* in a cow with cystic ovaries. The authors discussed the significance of this ratio for the study of sterility in horses and cattle.—R.M.

UNDERWOOD, E. J., SHIER, F. L. & PETERSON, J. E. (1953). **The effects of prolonged injections of stilboestrol on the ewe.**—*Aust. vet. J.* **29**, 206-211. **1702**

Ninety-five Merino ewes, aged 12–14 months, were given i/m injections of stilboestrol over a period of 6 months. Twenty-five control ewes were injected with oil only. Eight dose levels were employed, ranging from 0·11 to 16 mg. stilboestrol per ewe per day. The effect of this treatment on the incidence of oestrus, infertility, and dystocia was followed in the succeeding two and a half years.

Ewes receiving 1–16 mg. stilboestrol per day showed some degree of mammary enlargement during the treatment period, and those receiving 4–16 mg. doses lost weight during the same period.

After the cessation of treatment the ewes were run with raddled entire rams. The incidence of oestrus in treated ewes was normal, but very few became pregnant. On the other hand, the control ewes given oil only were highly fertile. Animals that had received 1–16 mg. per day were also mated in the two following seasons, but their fertility was found to be still very low. A number of the ewes that did become pregnant exhibited dystocia. At the end of the experiment, P.M. examination of 20 ewes that had received 1–16 mg. stilboestrol per day showed that, whereas the ovaries, oviducts and vagina of all animals appeared normal, in 16 cystic endometrial hyperplasia was found in the uterus. The genital tract was normal in the 6 ewes examined from the control group.

Information on the permanence of the infertility of the ewes that were given 0·11 and 0·33 mg. per day was not available, nor were P.M. examinations carried out on these animals.

The persistent infertility, dystocia and endometrial hyperplasia previously found by Bennets, *et al.* [*V.B.* **17**, 1354], and by Underwood & Shier [*Ibid.* **21**, 3308], in ewes grazed on pastures dominated by subterranean clover were therefore reproduced experimentally by the injection of stilboestrol.—A. W. BRADEN.

BERTHELON, M. & TOURNUT, J. (1953). Recherches sur l'étiologie de la non délivrance chez les grandes femelles domestiques. [**Retention of the placenta in domestic animals.**] —*Rev. Méd. vét.* **104**, 529-538. **1703**

The authors compared and discussed expulsion of the normal and retained placenta in the mare and cow. According to their observations on 4 cows subjected to caesarian section, neither posterior pituitary extract, oestrogens nor testosterone brought about placental separation.—R. MACGREGOR.

BLACK, W. G., SIMON, J., MCNUTT, S. H. & CASIDA, L. E. (1953). **Investigations on the physiological basis for the differential response of estrous and pseudopregnant rabbit uteri to induced infection.**—*Amer. J. vet. Res.* **14**, 318-323. [Authors' summary modified.] **1704**

The uteri of oestrous and pseudo-pregnant rabbits were inoculated with pure cultures of *Bact. coli* or a haemolytic *Staphylococcus.*

Pyometra was found 24 hours later in uteri during the luteal phase of the oestrous cycle and also in the uteri of pseudo-pregnant rabbits, but not in uteri in the follicular phase. *Vibrio fetus* failed to induce an appreciable response at either stage of the oestrous cycle.

Pyometra did not develop in inoculated uteri of oestrous rabbits in which the cervix had been ligated, or in the inoculated uteri of ovariectomized rabbits, some of which were treated with oestrogen. Treatment of ovariectomized rabbits with progesterone induced pyometra.

RASMUSSEN, E. W. (1953). **The relation between strength of sexual drive and fertility in rats, cocks and mice.** — *Proc. XVth Int. vet. Congr. Stockholm.* 1953. **2,** Pt. 1. 746-748. [In English. French and German summaries.] **1705**

Sex drive in the rat was measured by the number of times a rat would cross an electric grill to reach one of the opposite sex. R. concluded that, in the rat, there is an inverse ratio between strength of sexual drive and fertility. Similar, but doubtfully significant findings were given for cocks. Data could not yet be given for mice.—IAN NEWSAM.

BREKLING, C. (1952). Domestikationens betydning for husdyrsygdommenes aetiologi med saerligt henblik på kvaegets ufrugtbarhed. **[The role of domestication in the aetiology of disease, especially infertility of cattle.]**—*Nord. Vet.-Med.* **4,** 145-176. [In Danish. English and German summaries.] **1706**

A detailed discussion on certain literature dealing with animal and human sex psychology, to support the view that unnecessary restriction of the natural sex drive of domestic animals as a result of over-domestication, and especially the excessive use of artificial insemination to the exclusion of natural breeding may be the fundamental cause of various types of sterility and of other disorders originating in the sympathetic nervous system. B. suggested ways in which the adverse effect of domestication on the sex manifestations and consequently on the health and well-being of farm animals could be minimized.—F.E.W.

DE NORDIS, S. & SARTONI, E. (1953). Sul valore di alcuni metodi di indagine nei rapporti fra S.N.V. e sterilità. **[Relationship between the sympathetic nervous system and sterility.]**—*Nuova Vet.* **29,** 155-162. **1707**

The authors applied the atropine test described by Danielopolu and the otocardiac reflex test described by Roger to 12 sterile mares, the findings being compared in a table with the history, clinical findings and results of rectal examination. No decisive predominance of the sympathetic system was demonstrable.

—I. MARTINI.

CORRIAS, A. (1953). Il quadro microscopico della mucosa vaginale e del prepuzio in animali affetti da alterazioni a carico della sfera genitale. **[Histopathology of the mucosa of the vagina and the prepuce in sterile cattle.]**—*Arch. Vet. Ital.* **4,** 407-414. [English, French, German and Spanish summaries. Abst. from English summary.] **1708**

Histological examination of preputial and of vaginal and uterine mucosa from 2 young bulls and 4 cows with various lesions of the genital organs revealed the presence of an inflammatory process characterized by diffuse infiltration of large numbers of plasma cells, lymphocytes and occasionally granulocytes into the superficial layers of the corium and occasionally into the epithelium. Granules, visible to the naked eye, on the surface of the mucosae corresponded in all cases to patches of intense cellular infiltration. Their presence does not indicate a specific infection. There appeared to be a certain degree of correlation between vaginal and uterine inflammatory processes, though the latter were less severe. Sixteen photomicrographs were reproduced. Work on a larger material is necessary.

JOHANSSON, I. (1953). **A new type of achondroplasia in cattle.**—*Hereditas, Lund.* **39,** 75-87. [In English.] **1709**

A normal bull of the Swedish Red-and-White breed with no history of achondroplasia in its ancestors was mated to unrelated cows of various families. Out of 53 calves from these matings, 25 were dwarfs. J. concluded that the gene for achondroplasia had arisen by mutation in the pre-germinal tissues of the bull.

—R.M.

INGALLS, T. H., AVIS, F. R., CURLEY, F. J. & TEMIN, H. M. (1953). **Genetic determinants of hypoxia-induced congenital anomalies.**—*J. Hered.* **44,** 185-194. [Authors' summary modified.] **1710**

The authors investigated the effects on the development of the embryos of a 5-hour exposure of mice to high altitude hypoxia on the 9th and 15th days of gestation. Various con-

genital defects such as umbilical hernia, cranioschisis, malformation of the ribs and vertebrae occurred after exposure on the 9th day of gestation. Following hypoxia on the 15th day there was an increased incidence of umbilical hernia and ocular defects. The nature of the genetic contribution to the acquired anomaly was discussed.

See also absts. **1357-1359** (*V. fetus* infection); **1393** (*S. dublin* in the uterus of cows); **1402-1409** (brucellosis); **1438** (*Brucella* and *Vibrio*); **1453-1454** (trichomoniasis); **1581** (terramycin culture residue for increase of egg yield); **1614** (diseases of the genital system in goats); **1732** (book, artificial insemination).

ZOOTECHNY

ROBINSON, K. W. & KLEMM, G. H. (1953). **A study of heat tolerance of grade Australian Illawarra Shorthorn cows during early lactation.**—*Aust. J. agric. Res.* **4,** 224-234. [Abst. from authors' summary.] 1711

The authors studied the rectal temperature, pulse rate, respiratory rate, evaporative loss, skin temp., and behaviour of 4 grade Australian Illawarra Shorthorn cows, aged 3 years, exposed for 7 hours twice a week to each of several atmospheres having dry-bulb temperatures ranging from 86° to 108·5°F. and absolute humidities ranging from 8 to 16 g./cu. ft. Average morning rectal temp. taken before the cows entered the hot room was 101·5 ± 1·29°F. At dry-bulb temperatures of 95°F. and above there was a noticeable rise in rectal temp. and rise in body temp. paralleled rise in humidity. Humidity had a greater effect on the animal than dry-bulb temp. Pulse rate was essentially unaffected by rise in temp. On exposure to heat, the respiratory rate increased considerably before any rise in rectal temp. was apparent. When dry-bulb temp. increased, there was a parallel rise of evaporative loss with rise in respiratory rate. Humidity had little effect on water loss.

The authors compared these reactions with those of 4 Jersey cows of similar age and lactation, exposed to atmospheric conditions similar to those observed by Riek and Lee [*V.B.* **21,** 2698].

GAUNYA, W. S. & EATON, H. D. (1953). **Prepartum milking. IV. The effect of prepartum milking on milk production and length of time required to reach peak lactation.**—*J. Dairy Sci.* **36,** 168-172. 1712

No significant differences in milk yield or time taken to reach peak of lactation were observed between groups of (22) cows milked pre and *post-partum*. Within the prepartum group the time taken to reach peak lactation when milked prepartum was 36·7 ± 2·54 days, as opposed to 44·6 ± 3·69 days (difference significant at 5% level) when milked *post-partum* during their previous or subsequent lactation; no such difference was found within the *post-partum* group.—C. A. E. BRIGGS.

JORDAN, R. M. (1953). **Effect of stilbestrol on suckling and fattening lambs.**—*J. Anim. Sci.* **12,** 670-679. [Abst. from author's summary.] 1713

Subcutaneous inplantation of 12 mg. stilboestrol in the jaw of unweaned lambs at 2½–3 months of age failed to increase rate of gain. A slight but statistically insignificant increase resulted when unweaned lambs 3½–4 months of age were treated. General type was not affected by treatment but an increase in the size of the mammary glands and secretion of milk of normal appearance occurred in the treated lambs. Growth of the testes was arrested, but they appeared normal approx. 4–5 months after treatment.

Treatment of fattening lambs with 12 mg. stilboestrol increased rate of gain and feed efficiency significantly. Carcass grade was lowered considerably and carcass yield slightly. There was more shrinkage of the carcass after chilling than in the controls. Total cooking losses including water vapour and drippings were of about the same magnitude in both groups.

There was no difference in digestibility of the feed nutrients by the lambs in the treated and untreated groups. The nitrogen content of urine was approx. the same for both groups. However, the treated lambs excreted considerably less urine and consequently less nitrogen. Nitrogen retention was approx. 30% greater in the treated lambs.

A severe outbreak of prolapse of the rectum and uterus resulting in urinary blockage and death occurred in a band of 9,000 lambs treated with 12 mg. of stilboestrol. No controls were used in this group.

TECHNIQUE AND APPARATUS

GULD, J. & RUD, C. (1953). **Measurement of leakage of tuberculin syringes.**—*Brit. med. J.* Feb. 14th, 368-370. **1714**

The authors reported that hypodermic syringes are frequently inaccurate because the contents tend to leak back past the piston, especially after considerable use. They described an apparatus for testing the accuracy of syringes. A syringe under test is placed upright with its end blocked, and a constant force is applied to the plunger by means of a weight. The rate of descent of the plunger gives an accurate idea of the extent of leakage.—A.S.

LOCKHART, W. R. (1953). **A single tube method for anaerobic incubation of bacterial cultures.** [Correspondence.] — *Science.* **118,** 144. **1715**

L. described a method, using potassium hydroxide and pyrogallol, by which anaerobic conditions were rapidly attained in individual culture tubes, thus obviating the need for either inversion of the tube or the use of accessory equipment.—E. A. GIBSON.

BUGHER, J. C. (1953). **Characteristics of collodion membranes for ultrafiltration.**—*J. gen. Physiol.* **36,** 431-448. [Author's summary modified.] **1716**

B. described an apparatus for the production of graded collodion membranes. He discussed the theoretical considerations of calibration in relation to the demonstrable structure and statistical characteristics of the membranes.

MEINECKE, G. (1953). Ein steril abgeschirmtes Beobachtungsgefäss aus Polyäthylen. **[A sterile screened observation chamber made of polyethylene.]**—*Z. Hyg. InfektKr.* **136,** 229-232. **1717**

M. described a simple observation chamber, for the examination of a preparation on a single glass slide, consisting of polyethylene foil folded and with the edges joined to form a transparent sterile vapour-proof bag. The base of the bag is fixed to a slide and there is an opening in the bag with a close fitting glass tube for insertion of the object to be examined. —E.G.

GEORGE, O. T. (1952). **A diluting fluid for counting erythrocytes which simultaneously stains the cells and makes them lie flat within a single focal plane.**—*J. Lab. clin. Med.* **40,** 479-483. **1718**

The fluid discussed is Dacie's formol-citrate modified by the addition of eosin.

—L. M. MARKSON.

KOSENOW, W. (1953). Die Vitalfluorochromierung der Retikulocyten mit Acridinorange. **[Vital staining of reticulocytes with fluoro acridine orange.]**—*Folia haemat.* **71,** 170-178. [English, French and Russian summaries. English summary modified.] **1719**

Fluorescent staining with an isotonic acridine orange solution (1:20,000) was found to be a preservative supravital method for the demonstration of the reticulocytes in the blood, lending itself equally well to the observation of the form and attitude of the single cell and to the relative count of the reticulocytes. K. described the technique, and discussed the advantages and disadvantages of the method.

VALLEJO-FREIRE, A. (1951). **A simple technique for repeated collection of blood samples from guinea pigs.**—*Science.* **114,** 524-525. **1720**

A nail is cut off close to the root and blood collected from the wound. Where bleeding is inadequate, infra-red irradiation will produce vasodilatation. Two bleedings can be made from the same nail root, while the other nails provide further sources. [No reference is made to the use of an anaesthetic when this amputation of the claw is done.—Ed. *V.B.*]

—L. M. MARKSON.

See also absts. **1367** (slide culture of tubercle bacilli); **1564** (worm egg count sampling technique).

MISCELLANEOUS

SCHADEWALDT, H. (1953). Ein Beitrag zur Geschichte des Wortes " Pathologie ". **[History of the word ' pathology '.]**—*Zbl. Allg. Path. path. Anat.* **89,** 185-190. **1721**

S. traced the use of the word ' pathology ' in book and thesis titles and so on, the period covered extending from the time of Galen through Jean Fernel to Virchow.—E. COTCHIN.

GLEISER, C. A. (1953). **The sequence of pathological events in dogs exposed to a lethal dose 100/30 of total body X-irradiation.**—*Amer. J. vet. Res.* **14,** 287-297. **1722**

A detailed account, illustrated with 19 photomicrographs, of a histopathological study made on 18 dogs serially destroyed after exposure to 600 r of bilateral total body X-irradiation [see also *V.B.* **24,** 648]. Histopathological evidence of ionizing radiation injury was confined to the lymphoid, haematopoietic, intestinal and genital tissues, the essential lesions being:—immediate and progressive degeneration of the lymphoid tissues with a transient repopulation of follicles; early and progressive degeneration of the myeloid and erythroid elements of the bone marrow, progressing to complete aplasia; evidence of early erythrocyte and capillary endothelial damage; early and progressive degenerative changes within the epithelial elements of the intestinal tract, followed by regeneration; progressive patchy degeneration within the seminiferous tubules, resulting in decreased spermatogenesis and aspermia; the development of a haemorrhagic syndrome on the seventh day. The gross lesions were minimal.—F.E.W.

REPORTS

BASUTOLAND. (1953). **Annual report of the Department of Agriculture, 1952.** [KING, J. G. M.] pp. 40. Maseru, Basutoland: Dept. of Agric. **1723**

There were no major outbreaks of disease. Control of ANTHRAX and BLACKLEG is by vaccination. There was a small increase in the numbers of outbreaks of both diseases.

MANGE is widespread among horses and cattle. Compulsory simultaneous isolation and treatment of all infested animals in the territory is to be applied. There is no sheep or goat scab. It is compulsory to dose sheep every three weeks with arsenic and copper sulphate preparations.

Heavy losses among equine species are caused by SENECIO POISONING. Twenty-six cases of AFRICAN HORSESICKNESS were reported. Two horses of six treated recovered. European owners use the prophylactic AFRICAN HORSESICKNESS vaccine.

FOWL TYPHOID, FOWL POX, LYMPHOID COCCIDIOSIS, ROUP, and BLACKHEAD are encountered.

DOG DISTEMPER and FELINE INFECTIOUS ENTERITIS occur and there was one outbreak of BLUETONGUE in sheep.

Two thousand four hundred animals were treated in the clinic.—J. A. GRIFFITHS.

SOMALILAND PROTECTORATE. (1953). **Report of the Department of Agricultural and Veterinary Services for 1952.** [PECK, E. F.] pp. 58. [Mimeographed.] **1724**

TRYPANOSMIASIS in camels is satisfactorily controlled with antrypol; 21,408 doses were sold.

The incidence of TICK PARALYSIS in both camel calves and their dams was unusually high. Benzene hexachloride is used to control it.

RABIES is being dealt with by poisoning and shooting of stray dogs and of "vermin" (including big game). Supplies of Flury vaccine are now being obtained. The incidence of RINDERPEST was lower than usual and supplies of goat-adapted vaccine were greatly in excess of the demand.—W. S. MARSHALL.

U.S.A. (1953). **Forty-fifth and forty-sixth annual report of the North Dakota Livestock Sanitary Board to the Governor of North Dakota, years 1951 and 1952.** pp. 94. [Publisher not given.] **1725**

The shortage of veterinary surgeons in the U.S.A. makes it difficult to recruit suitable men for the rigorous climate of North Dakota. Some relief has been obtained by recruiting experienced veterinary surgeons from European refugees. These men, used to hard winters and arduous conditions, are giving excellent service.

Among 40,000 cattle tuberculin tested during 1950-52 there were 72 reactors. Among 454,000 cattle tested for BRUCELLOSIS there were 12,000 reactors to the agglutination test. Vaccination of cattle against BLACKLEG is carried out by the owners and losses from this disease were higher than from any other cause (115 deaths were reported during the two years).

The following numbers of deaths from each of the following diseases were reported during 1951 and 1952:—ANTHRAX—7 cattle; JOHNE'S DISEASE—16 cattle; TETANUS—13 cattle and 76 sheep; HYPERKERATOSIS—7 cattle; EQUINE ENCEPHALOMYELITIS—14 horses; SWINE FEVER—230 pigs; SWINE ERYSIPELAS—179 pigs; NECROTIC ENTERITIS—4 pigs; RABIES—12 cattle, 20 dogs, 35 cats, 29 skunks, 2 squirrels, a fox and 27 other mammals.

The following poultry diseases were mentioned:—BLACKHEAD, FOWL CHOLERA, FOWL TYPHOID, COCCIDIOSIS, *Erysipelothrix rhusiopathiae* infection, LARYNGOTRACHEITIS, LEUCOSIS, PULLORUM DISEASE, TRICHOMONIASIS and TB.—J. A. GRIFFITHS.

BOOK REVIEWS

FILDES, P. & VAN HEYNINGEN, W. E. [Edited by.] (1953). **The nature of virus multiplication. Second symposium of the Society for General Microbiology, held at Oxford University, April, 1952.** pp. viii + 320. London: Cambridge University Press. 35s. 1726

The field of virus research is growing so rapidly that it is impossible for most workers to follow developments in every corner. The great value of such occasions as this symposium lies in the opportunity given to workers in the more specialized parts of the field to hear what their colleagues are doing and thinking.

This volume, well printed and produced by the Cambridge University Press, contains the papers prepared by the invited contributors, together with such of the discussion as the editors were able to extract from the speakers afterwards.

The papers number sixteen and the subjects covered range from biochemical changes during protein synthesis and theories to explain lysogenic 'phage and incomplete virus to electron-microscopic investigations into possible life-cycles in viruses. The invited contributions came from workers studying 'phage, mammalian, avian, insect and fowl tumour viruses and survey so many aspects that in this review it is impossible even to name them all. Opposing views on a number of points were defended and many questions, still requiring to be answered, emerged. As one of the contributors says: " The cause of the present division of opinion as to how viruses multiply is the lack of direct evidence ".

One has only to consider the rarity in the bibliographies of references to papers published before 1940 to realize how rapidly this field is growing. As a summary of the present state of our knowledge (and lack thereof) this book will be invaluable to all serious virus workers. Students and clinicians may find it " heavy going ". The Society of General Microbiology is to be congratulated for conceiving the idea of holding this Symposium and the editors for producing so excellent a record.

—J. RICHARD HUDSON.

VERZÁR, F. [Edited by.] (1953). Symposium über Gegenwartsprobleme der Ernährungsforschung. (Experientia Supplementum I.) **[Symposium on current problems in nutrition research.]** pp. 312. Basle: Verlag Birkhäuser AG. Swiss Fr. 32. 1727

This volume contains the text of the addresses made at a first symposium on problems in nutrition research under the auspices of the International Union of Nutrition Sciences. Many of the papers are in English, some in French and others in German.

The field covered was wide, but the speakers had to confine themselves strictly to giving the results of basic scientific research. Twenty subjects were covered, including:—the basis of natural foodstuffs for nutrition; microbiology of digestion; free and combined amino acids in foodstuffs; vitamin E as an *in vivo* antioxidant; the use of hormones in nutrition; minerals and nutrition; the nutrition work of F.A.O.

While the majority of the articles are concerned with problems of a biochemical or physiological nature, the impact of the results of such work upon practical feeding problems occupied a number of speakers. The discussions which followed the addresses are reported and references accompany the papers.

The book should prove of great interest to any worker in nutritional science.

—R. MARSHALL.

SEN, K. C. [Director, Indian Dairy Research Institute, Bangalore.] (1953). **Animal nutrition research in India.** pp. xii + 370. Calcutta, Bombay, Madras & London: Macmillan & Co., Ltd. 25s. 1728

The results of many years' work in India are collected and summarized in this volume. The research work done in India has not been sufficiently well known to other workers and this publication will help to remedy that defect.

It presents first an outline of agriculture and animal husbandry in India followed by chapters on the chemical composition and digestibility of the Indian feeding stuffs. Other chapters deal with such topics as protein and mineral metabolism, poisonous plants, preservation of fodders, utilization of tree leaves and industrial by-products, deficiency diseases and dairying.

There is a great mass of information of value to workers in other tropical countries outside India. Veterinarians will find special interest in the chapters dealing with poisonous plants, toxic minerals, and deficiency diseases.

Each chapter has a good list of references particularly, but not solely, to papers published by Indian workers. There is a helpful glossary

of Indian names for plants, feeding stuffs and dairying products, and an author index but no subject index.—M.C.

MOZLEY, A. (1953). **A background for the prevention of bilharzia.** pp. viii + 71. London: H. K. Lewis & Co. Ltd. 9s. **1729**

This considers the ecological requirements of the snail vectors of bilharzia and touches on a number of suggested methods for the control of snails.

The booklet, which is one of a series, would be much improved by the inclusion of accounts of the successful application of the methods of snail control which the author recommends.—S. B. KENDALL.

HUGHES, H. V. & DRANSFIELD, J. W. [Edited by.] (1953). **McFadyean's osteology and arthrology of the domesticated animals.** pp. vii + 288. London: Baillière, Tindall & Cox. 4th Edit. 21s. **1730**

The original format is preserved in this fourth edition, the first since McFadyean's death; thus the horse still features as the species with which comparisons are made. Nevertheless the editors have redrawn the old and added new figures, presented more information on bone development and introduced the study of joints in a manner which indicates their functional significance.—C. W. OTTAWAY.

WEICHERT, C. K. [Professor of Zoology, University of Cincinnati.] (1953). **Elements of chordate anatomy.** pp. vii + 451. New York, Toronto & London: McGraw-Hill Book Co., Inc. $5.50 or 44s. **1731**

This book is an abridged version of "Anatomy of the Chordates" an earlier publication by the same author [*V.B.* **22, 3023**].

Following a concise account of the subdivisions of the phylum development factors are considered. The body systems are then reviewed on a comparative basis as within the classes. The last chapter contains a summary of characteristics and advances in the various divisions of the phylum. The book is well illustrated and each chapter concludes with a summary of contents.

The information is up to date and the real value of the embryological approach to such a study is clearly indicated. The book is recommended to all who wish to obtain general knowledge of the chordates.—W. M. GOODCHILD.

ANON. (1953). Problemi biologici e tecnologici della fecondazione artificiale. **[Biology and technology of artificial insemination.]** pp. xvi + 507. Milan: Collana Tecnico-Scientifica "L. Spallanzani". No. 7. L. 6000. **1732**

An authoritative treatise issued by the "L. Spallanzani" institute for artificial insemination at Milan, under the directorship of Professor T. Bonadonna. The book covers a wide field and describes, in addition to the properties of semen and the technique of artificial insemination in horses, cattle, sheep, pigs, dogs and fowls, the physiology of reproduction, transplantation of fertilized ova, management of breeding animals, sex hormone therapy and other subjects closely connected with artificial insemination. The literature is well reviewed and there is a bibliography of nearly 900 references. The text is illustrated with diagrams and photographs, but the print is rather small.—R.M.

FAULKNER, D. E. (1953). **Notes on animal health and industry for Africans.** pp. vi + 327. Nairobi, Kenya: Government Printer. 5s. **1733**

Written for the educated African this small book deals with general agriculture, veterinary science and animal husbandry. The different topics are each numbered consecutively and total 317. In addition there are appendixes covering recommended reading; grading of cattle hides; tables of pulse, temperature, respiration, weights and measures, and testing of dips.

The language used is non-technical and the information is presented simply and clearly. It covers a wide field and its value is enhanced by a number of good illustrations. It should be of the greatest value to farmers, schools, livestock inspectors and veterinary assistants.

—M.C.

Printed in Great Britain by CHARLES BURRELL & SON, Chertsey, Surrey

DISEASES CAUSED BACTERIA AND FUNGI, 1734-1823.

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ERRATA

V.B. **24**, absts. 562-563. For *J. Amer. vet. med. Ass.*, please read: *J. Amer. med. Ass.*

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ABBREVIATIONS OF NAMES OF PUBLICATIONS

The abbreviations used in *Index Veterinarius* and *The Veterinary Bulletin* are those of the *World List of Scientific Periodicals* published in the years 1900-1950, 3rd Edit. (1952). London : Butterworths Scientific Publications.

The Executive Council of the Commonwealth Agricultural Bureaux is a signatory to the Fair Copying Declaration, details of which can be obtained from the Royal Society, Burlington House, London, W.1.

Bulletins on disease subjects written for farmers and "popular" articles of a similar nature are not included in the *Veterinary Bulletin*. Those of a sufficiently important nature are, however, included in *Index Veterinarius*; so also are certain review articles, presidential addresses, congress proceedings, etc., where the title conveys as much information as could be given in an abstract of a few lines. For information of this nature, readers of the *Veterinary Bulletin* are referred to *Index Veterinarius*, where titles of all publications indexed by the bureau are fully cross-referenced.

A list of annotations and reviews, classified according to subject, is now given in *Index Veterinarius*, being inserted at the end of each number. Such papers will not necessarily be dealt with in the *Veterinary Bulletin*.

The Editor will be glad to receive publications relating to Veterinary Science and cognate subjects in order that they may be dealt with in the *Veterinary Bulletin*.

Reports of Departments, Special Reports, reprints, etc., etc., should be sent as soon as they are issued.

Books for Review.

The Editor will be glad to receive books for review in the *Veterinary Bulletin*.